dup.

ANNOUNCEMENTS
1955 1956

UNIVERSITY OF SANTA CLARA

CATALOGUE 1954-1955
THE HUNDRED AND FIFTH YEAR

University of Santa Clara

COLLEGE OF ARTS AND SCIENCES

This College offers major courses in the Departments of Economics, English, History, Philosophy, Political Science, Spanish, Biology, Chemistry and Physics leading to the Bachelor's degree.

COLLEGE OF BUSINESS ADMINISTRATION

A four-year course leading to the degree of Bachelor of Science in Commerce

Evening Division: Selected courses in Business Administration offered for college credit but leading to no degree.

COLLEGE OF ENGINEERING

Four and five-year courses in Civil, Electrical and Mechanical Engineering.

COLLEGE OF LAW

A three-year full time day law course leading to the degree of Bachelor of Laws, following three years' pre-legal work in the College of Arts and Sciences.

The catalogue of the University is dated for the academic year in progress at the time of printing because it records the faculty, students, and courses for that year. It also carries the date of the academic year following publication because the calendar and announcements are for that year. This catalogue published during the Academic Year 1954-55, carries prominently on its cover the date of the calendar and announcements 1955-56.

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University of Santa Clara
Santa Clara, California

Map of the
UNIVERSITY OF SANTA CLARA

APRIL, 1955

University of Santa Clara

COLLEGE OF ARTS AND SCIENCES

This College offers major courses in the Departments of Economics, English, History, Philosophy, Political Science, Spanish, Biology, Chemistry and Physics leading to the Bachelor's degree.

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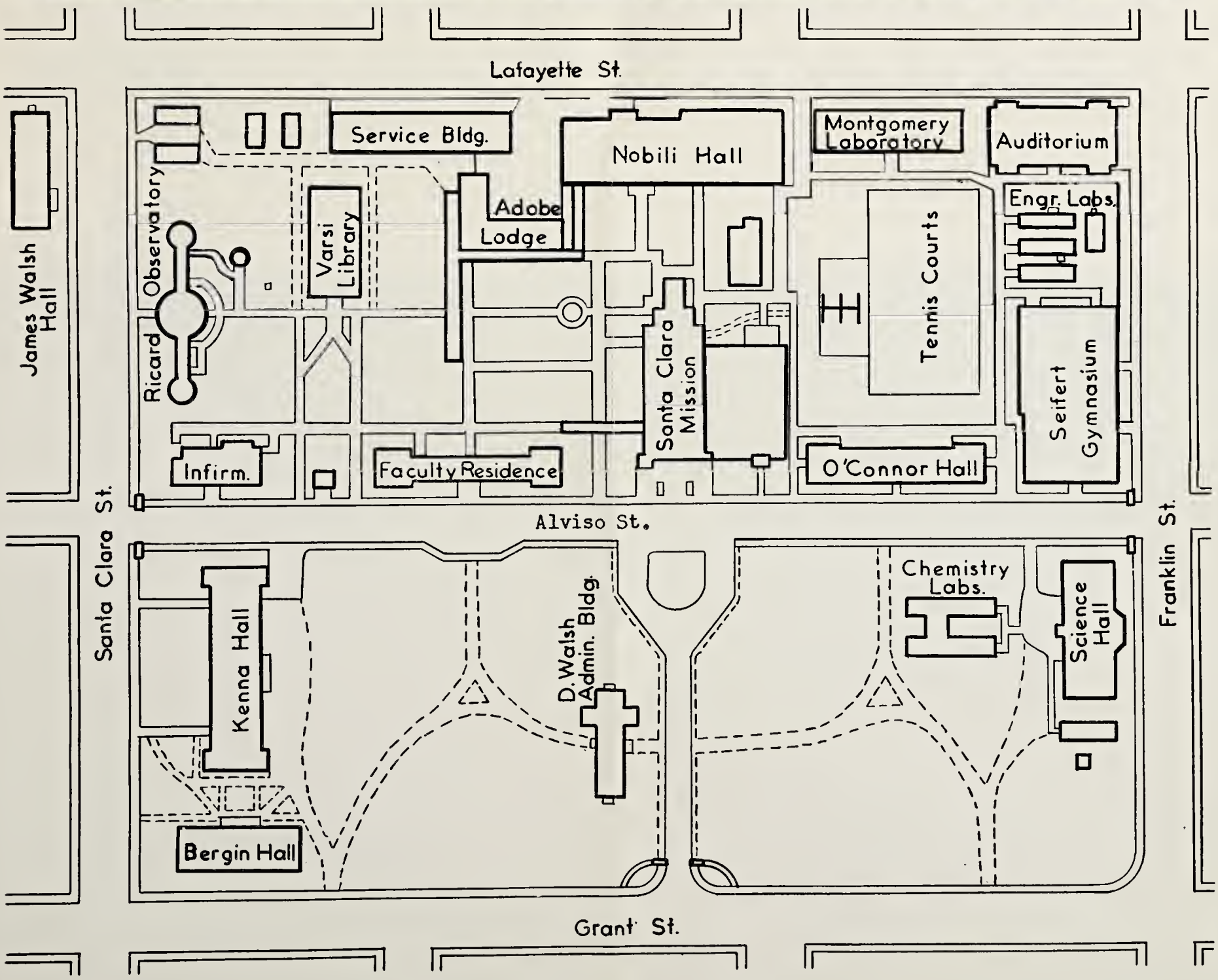
Lafayette St.
Service Bldg.
Nobili Hall
Montgomery Laboratory
Auditorium
Observatory
Varsi Library
Adobe Lodge
Engr. Labs.
Tennis Courts
James Walsh Hall
Ricard
Santa Clara Mission
Seifert Gymnasium
Infirm.
Faculty Residence
O'Connor Hall
Santa Clara St.
Alviso St.
Franklin St.
Chemistry Labs.
Kenna Hall
D. Walsh Admin. Bldg.
Science Hall
Bergin Hall
Grant St.

To mould men after the model of the Man-God, and thus form them to serve their fellowmen, their country and their God; this is the ideal and the purpose of the University of Santa Clara.

University of Santa Clara

ANNOUNCEMENTS, 1955-1956

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CATALOGUE

for the

ONE HUNDRED AND FOURTH YEAR

1954 - 1955

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Member National Catholic Educational Association
Member Jesuit Educational Association
Member Northwest Association of Secondary and Higher Schools
Accredited by the Western College Association
Member American Council on Education
Accredited by Engineering Council for Professional Development
Approved by the American Bar Association
Member Association of American Law Schools
Approved by the American Medical Association
Accredited by the State Bar of California
Accredited by the Board of Regents, of the State of New York
Associate Member of American Association of
Collegiate Schools of Business Administration

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PUBLISHED ANNUALLY DURING APRIL BY
THE UNIVERSITY OF SANTA CLARA
SANTA CLARA, CALIFORNIA

APRIL, 1955

The Corporate Title of the University is

PRESIDENT AND BOARD OF TRUSTEES OF SANTA CLARA COLLEGE

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WILLIAM JOHN LOFTUS
Comptroller

EDWARD ALEXANDER AMARAL, M.D.
Director of Student Health

*Acting Dean, September 15, 1953.

UNIVERSITY CALENDAR*

1955

September

S	M	T	W	Th	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	

September 10: Registration of Freshmen.
September 11, 12, 13: Freshmen Orientation.
September 13: General Registration for Fall Semester (Sophomore, Junior, Senior and Law Students.)
September 14: Instruction begins.
September 22: Mass of the Holy Ghost, Class day; Field Competitions at 2:30 P.M.

October

S	M	T	W	Th	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

October 7: Last day for Seniors to file candidacy for graduation in June, 1956.
October 17-21: Mid-term Examinations (Mid-term examinations are not given in the College of Law.)
October 26-28: Annual Retreat.

November

S	M	T	W	Th	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30			

November 1: All Saints Day, a holiday.
November 8: Annual Memorial Mass.
November 11: Field Trip, College of Business Administration.
November 23: Thanksgiving Recess begins at 12:00 Noon.
November 28: Classes resume.

December

S	M	T	W	Th	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

December 1-7: Mid-term Examinations.
December 8: Feast of the Immaculate Conception, a holiday.
December 12: Announcement of Prize Contests.
December 16: Christmas recess begins.

1956

January

S	M	T	W	Th	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

January 3: Classes resume.
January 11: Last day to submit Pre-registration forms.
January 23-27: Semester Examinations.
January 30 to February 2: Inter-semester Recess.

***All dates are inclusive dates.**

UNIVERSITY CALENDAR*

1956

February

S	M	T	W	Th	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29			

February 3: Registration for undergraduates. (Sophomore, Junior, Senior and Law Students.)
February 4: Registration of Freshmen.
February 6: Instruction begins.
February 15: Ash Wednesday.
February 22: Washington's Birthday, a holiday.
February 29: Last day to file candidacy for Bachelor of Laws degree June, 1956.

March

S	M	T	W	Th	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

March 1: Owl Oratorical Contest.
March 6: Tryouts, Dramatic Art Contest.
March 8: Seminar: College of Business Administration, 1:30 P.M.
March 12-16: Mid-term Examinations.
March 29 to April 2: Easter Recess.

April

S	M	T	W	Th	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

April 20: Senior Thesis due.

April 23-27: Mid-term Examinations.

May

S	M	T	W	Th	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

May 2: President's Day.
May 3: Dramatic Art Contest.
May 4-5: Graduate Record Examinations in the College of Arts and Sciences.
May 8: Ryland Debate; Redwood & McCann Prize Essays and Shipsey Poem due.
May 10: Ascension Thursday, a holiday.
May 16: Last day to submit Pre-registration forms.
May 28 to June 1: Semester Examinations.

June

S	M	T	W	Th	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

June 9: 105th Commencement.

***All dates are inclusive dates.**

OFFICERS OF INSTRUCTION

HECTOR H. AIKEN, Assistant Professor
Engineering
B.S. in M.E., University of Illinois, 1943. M.S. in M.E., Stanford University, 1951. Instructor in M.E., University of Arizona, 1951. At Santa Clara since 1952.

WILSON ALBERT ALDRIDGE, S.J., Assistant Professor
Philosophy
M.A., Gonzaga University, 1938; S.T.L., Alma College, 1944. Instructor in English and French, University of San Francisco, 1938-40; Instructor in Philosophy and Religion, University of San Francisco, 1945-46; Associate Professor in Philosophy and Religion, Loyola University at Los Angeles, 1946-47, 1950-54. At Santa Clara since 1954.

O. ROBERT ANDERSON, Professor
Business Administration
A.B., University of Washington, 1934. M.B.A., University of Washington, 1942. Instructor in Accounting, University of Oregon, 1937-41. C.P.A., State of Oregon, 1941. At Santa Clara since 1942.

JOHN A. BAIN, S.J., Instructor
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B.A., Gonzaga University. 1939; M.A., Gonzaga University, 1940; S.T.L., Alma College, 1947. Instructor in Religion, University of San Francisco, 1949-51. At Santa Clara since 1954.

LOUIS I. BANNAN, S.J., Assistant Professor
Education, Philosophy
M.A., Gonzaga University, 1938. At Santa Clara since 1953.

THOMAS ALVA BARTLETT, Instructor
Political Science
A.B., Stanford University, 1951; B.A., Oxford University, 1953. Teaching Assistant and Departmental Executive Assistant, Political Science, Stanford University, 1953-..... At Santa Clara since 1955.

ARDELL KENT BARTLOW, Major, Assistant Professor
Military Science and Tactics
B.A., University of Missouri, 1948. Major, Field Artillery, United States Army. At Santa Clara since 1953.

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A.B., University of Santa Clara, 1925; LL.B., 1926. At Santa Clara since 1930.

CHARLES M. BEDOLLA
Director of Baseball
B.S., University of Santa Clara, 1950. At Santa Clara since 1954.

EDWIN ALANSON BEILHARZ, Professor
History, Political Science
Director, Division of Social Studies; Chairman, Department of History.
A.B., Creighton University, 1931; M.A., University of Nebraska, 1934; Ph.D., University of California, 1951. University Fellowship in History, University of California, 1934-35; Emmanuel S. Heller Memorial Scholar in History, University of California, 1935-36. At Santa Clara since 1936.

*MAURICE M. BELVAL, S.J., Instructor
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A.B., Loyola University at Los Angeles, 1938. M.A., in Philosophy, Gonzaga University, 1944. B.S.T., College of Immaculate Conception, Montreal, Canada, 1950. At Santa Clara since 1952.

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LLOYD LAWRENCE BOLTON, Professor
Biology
Chairman, Department of Biology.
B.A., University of British Columbia, 1922; M.A., 1924; Ph.D., Cornell University, 1932. Instructor in Biology, University of Saskatchewan, 1928-29. Instructor in Zoology, University of Washington, 1929-31. At Santa Clara since 1932.

JULES ELIE BOURET, Assistant Professor
History
A.B., San Jose State College, 1933; M.A., Stanford University, 1935. Instructor in History, Stanford University, 1944-46. At Santa Clara since 1946.

EDWIN JOHN BROWN, Professor
Education, Academic Counselor
B.S., Kansas State Teachers College, 1922; M.A., Stanford University, 1925; Ph.D., Stanford University, 1928. Professorial lecturer, Michigan State Normal College, Summer, 1926; University of Oregon, Summer, 1927; Stanford University, Summers, 1928, 1933. Professor in Education and Dean of the Graduate School, Kansas State Teachers College, 1928-44. Professor in Education and Dean of University College, St. Louis University, 1944-50. Professor of Educational Administration, St. Louis University, 1950-51. Professorial lecturer, University of Colorado, Summers, 1937, 1939, 1941, 1946, 1947, 1948, 1949, 1950, 1952, 1953, 1954. At Santa Clara since 1951.

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M.A., Gonzaga University, 1937; S.T.L., Alma College, 1942; M.A., Classics, Harvard University, 1949. Instructor in Greek, University of Santa Clara, 1937-38; Instructor in Latin and Greek, University of Santa Clara, 1934-36. At Santa Clara since 1950.

* Indicates instructing on Los Gatos campus.

*WILLIAM J. CAHILL, S.J., Assistant Professor
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S.T.L., Alma College, 1939, M.A., Classics, Stanford University, 1951. Instructor in Classics, University of Loyola, 1940-41. At Santa Clara since 1941.

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A.B., Syracuse University, 1940. Instructor in Political Science, Economics and History, Syracuse University, 1941-44. Teaching Assistant in Economics, Stanford University, 1944-46. Instructor in Economics, San Mateo Junior College, 1946-47. At Santa Clara since 1947.

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M.A., Gonzaga University, 1932; S.T.L., Alma College, 1939. Instructor in English, University of Santa Clara, 1932-34. Instructor in Philosophy, Loyola University at Los Angeles, 1934-35. Instructor in Philosophy, University of Santa Clara, 1940-42. At Santa Clara since 1946.

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At Santa Clara since 1948.

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Public Speaking
B.A., Gonzaga, 1952. At Santa Clara since 1954.

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A.B., St. Louis University, 1928; M.S., 1930; Ph.D., University of Kansas, 1932. Graduate work, University of Michigan, 1929. Teaching Fellowship, University of Kansas, 1931-32. At Santa Clara since 1936.

* Indicates instructing on Los Gatos campus.

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B.S.C., St. Louis University, 1935; M.S.C., 1938. Instructor in Economics, St. Louis University, 1937-38. Graduate work, University of Illinois, 1936. Visiting Professor of Marketing at University of Tennessee, 1947. Visiting Professor of Marketing, University of San Francisco, 1948-50. Visiting Professor of Business Administration, Graduate School of Business Administration, Harvard University, 1953. Visiting Professor of Marketing, School of Commerce, University of Southern California, Summer, 1954. At Santa Clara since 1938.

HUGH COLUMBUS DONAVON, S.J., Associate Professor
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M.A., Gonzaga University, 1919. Instructor in English, University of Santa Clara, 1919-22. At Santa Clara since 1929.

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* Indicates instructing on Los Gatos campus.

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M.A., Gonzaga University, 1939. Instructor in Economic History and English, University of Santa Clara, 1939-40. At Santa Clara since 1947.

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* Indicates instructing on Los Gatos campus.

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MILES V. McDONOUGH, Major, Assistant Professor
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Major, Field Artillery, United States Army. At Santa Clara since 1953.

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M.A., Woodstock College, 1917. At Santa Clara since 1951.

*VINCENT T. McGINTY, S.J., Instructor
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JOHN BERNARD MOONEY, Instructor
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B.S., University of Santa Clara, 1950; M.S., Stanford University, 1953. At Santa Clara since 1954.

ROBERT I. MURRAY, Instructor
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ROBERT H. NAU, Associate Professor
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B.S., Iowa State College, 1935. M.S., Texas A.&M., 1937. E.E., Iowa State College, 1941. Registered Engineer, State of California. Instructor, Texas A.&M., 1935-37. Assistant Professor of E.E., University of Illinois, 1947-52. At Santa Clara since 1952.

HENRY P. NETTESHEIM, Associate Professor
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Chairman, Department of Electrical Engineering.
B.S. in E.E., University of Wisconsin, 1946. M. S., Stanford University, 1951. Registered Engineer, State of California. At Santa Clara since 1947.

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* Indicates instructing on Los Gatos campus.

*FELTON G. O'TOOLE, S.J., Instructor
English
M.A,. in Philosophy, Gonzaga University, 1941. M.A., in English, Fordham University, 1951. Instructor in English, Loyola University at Los Angeles, 1952-53. At Santa Clara since 1953.

EDWIN J. OWENS, Professor
Law
A.B., Holy Cross College, 1919; LL.B., Harvard, 1922; LL.D., University of Santa Clara, 1952. Professor of Law, Boston College, 1928-33. Dean of the College of Law since 1934. Visiting Professor of Law, Hastings College of Law, Summer, 1942. Visiting Professor of Law, Stanford Law School, Fall Quarter, 1945. At Santa Clara since 1934.

JOHN PAGANI, Professor
Business Administration
B.S.C., University of Santa Clara, 1932; Ph.D., Stanford University, 1951. Teaching Assistant in Economics, University of California, 1932-34; Assistant Professor, University of Santa Clara, 1934-46; Acting Instructor in Economics, Stanford University, 1941-42; Assistant Professor, Stanford University, 1946-52; Associate Professor, University of Utah, School of Business Administration, 1952-54. At Santa Clara since 1954.

ROBERT J. PARDEN, Professor
Engineering
Assistant Dean, College of Engineering.
B.S.M.E., State University of Iowa, 1947; M.S., State University of Iowa, 1951; Ph.D., State University of Iowa, 1953. Associate Professor in Industrial Engineering, Illinois Institute of Technology, 1953-54. Registered Professional Engineer, State of Iowa. At Santa Clara since 1954.

RICHARD KRAMER PEFLEY, Assistant Professor
Engineering
Chairman, Department of Mechanical Engineering
B.A. in M.E., Stanford University, 1944; M.S. in M.E., Stanford University, 1951. At Santa Clara since 1951.

WILLIAM J. PERKINS, S.J., Instructor
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A.B., Gonzaga University, 1951. At Santa Clara since 1954.

JOSEPH J. POCIASK, S.J., Assistant Professor
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M.A., Gonzaga University, 1937; S.T.L., Alma College, 1943. At Santa Clara since 1948.

ROBERT E. PODESTA, Lecturer
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B.S.C., University of Santa Clara, 1943. At Santa Clara since 1949.

* Indicates instructing on Los Gatos campus.

KARL A. RAVEN, Instructor
Biology
B.A., University of Colorado, 1941; M.A., 1948. Assistant in Biology, University of Colorado, 1946-48. Assistant in Botany, University of California at Los Angeles, 1948-51. Research Associate, Saratoga Horticultural Foundation, 1951-53. At Santa Clara since 1953.

WOODROW W. REEDY, M/Sgt.
Military Science and Tactics
At Santa Clara 1948-50 and since 1952.

RICHARD JOSEPH ROBERTS, S.J., Instructor
Political Science
B.A., University of San Francisco, 1935; M.A., St. Louis University, 1943. Instructor in Political Science, University of San Franicsco, 1943-44. At Santa Clara since 1951.

HERMAN ROBERT ROESTI, Instructor
Business Administration
A.B., University of Santa Clara, 1942. Instructor in English and Speech, University of San Francisco, 1949-52. At Santa Clara since 1953.

FRANCIS L. SARSFIELD, Captain, Assistant Professor
Military Science and Tactics
B.S., United States Military Academy, 1949. Graduate, Ground General School, 1949. Graduate, Artillery School, 1950. Captain, Field Artillery, United States Army. At Santa Clara since 1953.

RICHARD M. SCHMIDT, Assistant Professor
English
A.B., University of Santa Clara, 1935; M.A., University of Washington, 1945. Instructor, University of Santa Clara, 1941-42. At Santa Clara since 1946.

WALTER E. SCHMIDT, S.J., Assistant Professor
Religion
M.A., Gonzaga University, 1936; S.T.L., Alma College, 1942. At Santa Clara since 1943.

PHILLIP G. SHERIDAN, Assistant Professor
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A.B., Gonzaga University, 1935; LL.B., Gonzaga University, 1937. At Santa Clara since 1954.

DAVID E. SMITH, Instructor
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LL.B., University of Santa Clara, 1954. At Santa Clara since 1954.

BYRON J. SNOW, Assistant Professor
Law
Acting Dean of the College of Law
A.B., San Jose State College, 1941; LL.B., University of Santa Clara, 1950. Instructor in English, University of Santa Clara, 1947-49. At Santa Clara since 1950.

FERDINAND J. SPIELER, S.J., Assistant Professor
Physics
M.A., Gonzaga University, 1935. Graduate work in Physics, Stanford University, 1942-43. At Santa Clara since 1943.

JOSEPH LONG STANDIFER, JR., Instructor
Law
LL.B., University of Santa Clara, 1952. At Santa Clara since 1954.

GEORGE LEONARD SULLIVAN, Professor
Engineering
Dean of the College of Engineering
B.S. in M.E., University of Nebraska, 1908; M.E., University of Colorado, 1910; Ph.D., University of Santa Clara, 1914. Instructor in Mechanical Engineering, University of Colorado, 1908-11. Assistant Professor of Mechanical Engineering, Montana State College 1911-12. Dean since 1918. At Santa Clara since 1912.

HAROLD M. TAPAY, Assistant Professor
Engineering
B.A.Sc. in M.E., University of British Columbia, 1946; M.S., University of Washington, 1949. University Fellowship in Mechanical Engineering, University of Washington, 1948-49; Instructor in Mechanical Engineering, Kansas State College, 1949-50. Registered Engineer, State of California. At Santa Clara since 1950.

ROBERT ANTHONY TAYLOR, S.J., Instructor
English
B.A., University of Santa Clara, 1950. At Santa Clara since 1953.

CLEMENS VAN PERRE, Assistant Professor
French
B.A., Royal Lyceum, Antwerp, 1908; Graduate, Athenaeum of Antwerp (Belgium) 1911; Graduate, Royal Conservatory, Antwerp, 1913; Graduate, University of Louvain, 1913-14. Director of Music, Mt. Angel College, 1920-25; Columbia University (Portland), 1925-32. At Santa Clara since 1932.

VICTOR BENJAMIN VARI, Assistant Professor
Spanish, Italian
Director, Division of Foreign Languages
Chairman, Department of Spanish
A.B., San Francisco State College, 1942; M.A., Stanford University, 1952. University of Sorborne, (France) 1945. University of Lausanne, (Switzerland) 1945-46. At Santa Clara since 1946.

ROBERT A. VATUONE, Instructor
Law
B.S., University of Santa Clara, 1951; LL.B., 1953. At Santa Clara since 1953.

JAMES VIZZARD, S.J., Instructor
Economics
Chairman, Department of Economics
B.A., Gonzaga University, 1939. M.A. Gonzaga University, 1940. S.T.L., Alma College, 1947. Instructor in English, University of Santa Clara, 1940-42; Instructor in Political Science, University of Santa Clara, 1948-49. At Santa Clara since 1953.

JAMES EDGAR WADE, Professor
English
Chairman, Department of English
A.B., University of Notre Dame, 1933; M.A., 1935. Ph.D., St. Louis University, 1942. Instructor, St. John's University, 1939-40. Associate Professor, University of San Francisco, 1940-48. At Santa Clara since 1948.

JOSEPH B. WALL, S.J., Assistant Professor
Religion
A.B., University of Santa Clara, 1937. M.A., Gonzaga University, 1940. S.T.L., Alma College, 1947. S.T.D., Gregorian University, Rome, 1951. Instructor in Philosophy, University of San Francisco, 1940-43. Instructor in Theology, Alma College, 1951-53. At Santa Clara since 1953.

AUSTEN DEN WARBURTON, Lecturer
Law
A.B., San Jose State College, 1938; LL.B., University of Santa Clara, 1941. At Santa Clara since 1946.

ALBERT D. WASEL, Assistant Professor
Mathematics
A.B., University of Pittsburgh, 1934; M.Ed., 1939. Instructor of Mathematics, University of California, 1946-47. At Santa Clara since 1947.

JOHN ANTHONY WEBER, S.J.
Director of the Ricard Memorial Observatory
M.A., Gonzaga University, 1933. Instructor in Physics and Mathematics, University of Santa Clara, 1935-36. At Santa Clara since 1941.

ALVIN M. WHITE, Instructor
Mathematics
A.B., Columbia University, 1949; A.M., University of California at Los Angeles, 1954. Teaching assistant in Mathematics, Stanford University, 1952-54; Acting Instructor, Stanford University, Spring, 1954. At Santa Clara since 1954.

FREDERICK D. WILHELMSEN, Assistant Professor
Philosophy
A.B., University of San Francisco, 1946; M.A., Notre Dame University, 1948. At Santa Clara since 1950.

JAMES E. WIRRICK, Captain, Assistant Professor
Military Science and Tactics
B.S. United States Military Academy, 1946. Captain, Artillery, United States Army. At Santa Clara since 1953.

RALPH A. YEO, Lecturer.
Law
B.A., Macalister College, 1924; LL.B., St. Paul College of Law, 1930; LL.M., Georgetown University, 1940. At Santa Clara since 1954.

FACULTY COMMITTEES

ACADEMIC COUNCIL
Father Hauck, Father Diebels, Father Kelley, Father King, Dean Dirksen, Dean Snow, Dean Sullivan, Mr. Arata, Father Boland, Father Donohoe, Father Fagothey, Father Martin, and Father McAuliffe.

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Father Diebels, Father Kelley, Father King, Dean Dirksen, Dean Snow, Dean Sullivan, Mr. Arata.

ADMISSIONS
Father Diebels, Father King, Dean Dirksen, Dean Snow, Dean Sullivan, Mr. Arata.

BULLETINS
Father Diebels, Father King, Mr. Arata.

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Father Diebels, Father King, Dean Dirksen, Dean Snow, Dean Sullivan, Father Donohoe, Mr. Deck.

LECTURES
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Father Diebels, Father King, Dean Dirksen, Dean Snow, Dean Sullivan, Mr. Loftus.

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Edward R. A. Boland, S.J. ..... Director of Libraries

Faculty Library

Edwin A. McFadden, S.J. ..... Librarian

Law Library

Joseph A. Standifer, A.B., LL.B. ..... Librarian

Varsi Library

Beryl M. Hoskin, B.A. ..... Reference Librarian
Doris E. Thibodeau, B.A., B.L.S. ..... Catalog Librarian
Charles J. Laubenthal, B.A., M.L.S. ..... Serial Librarian
Barbara A. Landergan, B.S. in L.S. ..... Circulation Librarian
Annette W. Fitzmaurice ..... Assistant, Acquisition Librarian
Elsie E. Andrade ..... Assistant, Catalog Librarian
Josephine D. Ferreira ..... Assistant, Acquisition Librarian

ALUMNI OFFICE

Joseph Lawrence Martin, S.J., M.A. ..... Alumni Moderator
Victor F. Stefan, B.S. ..... Alumni Secretary
Hilda R. Foglesong ..... Secretary

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UNIVERSITY PLACEMENT OFFICE

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DONOHOE MEMORIAL INFIRMARY

Edward A. Amaral, M.D. ..... Director of Student Health
Gertrude O. Larson, R.N. ..... Chief Nurse
Dorothy I. Crane ..... Nursing Assistant
Mary Ritchie ..... Nursing Assistant

THE RICARD MEMORIAL OBSERVATORY

John Anthony Weber, S.J. ..... Director

DE SAISSET ART GALLERY AND MUSEUM

Joseph J. Pociask, S.J. ..... General Director
Josef Hilpert, Kt.C., P.P.C. ..... Director of Art Gallery
Henry L. Walsh, S.J. ..... Curator of Mission and Galtes Museum
William G. Burman, S.J. ..... Curator of Bacigalupi Record Library

TECHNICAL AND CLERICAL ASSISTANTS

Rosalie Achorn ..... Military Science and Tactics Office

Barbara L. Borruso ..... College of Business Administration Office and Athletic Department

Vivian T. Chivers, Sgt. ..... Military Science and Tactics Office

Emma L. Chavez ..... Treasurer's Office

Betsy L. Cowan ..... Registrar's Office

Gladys E. Davis ..... P.B.X. Operator

Beverly J. DeCarlo ..... Academic Vice-President's Office

Pat S. Dobbs ..... Mimeograph Room

Hilda R. Foglesong ..... Publicity Office

Emma L. Gahafer ..... College of Engineering Office

Nadyne R. Giardina ..... Registrar's Office

Harry T. Hudson, M/Sgt. ..... Military Science and Tactics Office

Roseann Marvin ..... Registrar's Office

Marjorie McDonald ..... College of Law Office

Marie A. Murphy ..... Information Office

Carolyn A. Nickell ..... College of Arts and Sciences Office

George A. Olcese ..... Vice-President's Office

Vivian A. O'Leary ..... Bookstore

Joyce B. Patnude ..... Treasurer's Office

Richard F. Rebello ..... Bookstore

Helen K. Reedy ..... College of Business Administration Office

Donna L. Robinson ..... Mimeograph Room

Helen Rogers ..... P.B.X. Operator

Henry F. Schmidt, B.A. ..... Athletic Office

Frank A. Schneider, B.S.C. ..... President's Office

Mary L. Serpa ..... Registrar's Office

Dorothy M. Smith ..... Treasurer's Office

Garland K. White ..... Treasurer's Office

Margaret M. Williams ..... Military Science and Tactics Office

Birdell Wilson, S.F.C. ..... Military Science and Tactics Office

GENERAL INFORMATION

LOCATION

The University of Santa Clara, conducted by the Jesuit Fathers, is situated at Santa Clara on the site of the old Mission, in the southern part of the San Francisco metropolitan district and immediately adjacent to San Jose. Frequent railroad and bus service provides easy access to the various Bay cities, and direct connections to all parts of California and the West.

The valley of Santa Clara is famous throughout the world for the beauty of its scenery, the salubrity of its climate, and the excellence of its fruits. The climate is mild and equable both in summer and winter, and on that account singularly favorable for persistent study and research as well as for the maximum of agreeable out-of-doors recreation which such work makes necessary.

HISTORY

Mission Santa Clara. On January 12, 1777, two Franciscan Padres, de la Pena and Murguia, planted the Mission Cross and laid the foundations of Mission Santa Clara on the banks of the Guadalupe, about a mile and a half from the University grounds. Two years later a flood destroyed both church and monastery, and the Padres in consequence removed the Mission to the second site, two blocks from the present church. There, on November 9, 1781, they laid the foundation of a large adobe church and mission buildings. Three years later, on May 15, 1784, the new church was dedicated by the Venerable Padre Serra, then Padre Presidente of the Missions of California.

Owing to damage by earthquakes in 1812 and 1818 the Padres were forced to build anew and this time selected the site of the present Mission. There, on August 11, 1822, a still larger church was dedicated. With the passing of time the original church was largely rebuilt, though the chancel and the interior arrangements remained substantially as originally constructed. In October, 1926, the Mission was destroyed by fire and rebuilt in 1927, along the lines of the original structure. This new Mission was dedicated in 1928. The restoration of the Mission was made possible by the generosity of friends in the Santa Clara Valley as well as friends and Alumni of the University throughout the State of California.

In 1836 Mission Santa Clara was secularized and passed from the hands of the devoted Padres into those of politicians, who robbed the Mission of her lands and oppressed or drove away her children. When Rt. Rev. Joseph Sadoc Alemany, O.P., arrived as Bishop of the Diocese of San Francisco in 1850, he found only one Franciscan in charge of the Mission, which had been restored by the American government, though in a sadly reduced form.

Santa Clara College. Desiring to save the remnants of the Mission, and also to start a college to meet the growing need of the times, the Bishop invited the Society of Jesus to Santa Clara. The invitation was accepted, and accordingly on March 19, 1851, Father John Nobili laid the foundation of Santa Clara College.

He adapted the old adobe buildings to the requirements of a college. On April 28, 1855, the institution was chartered a University and continued to be known as Santa Clara College until 1912. It is the oldest institution of higher learning in the west. In 1857 the degree of A.B. was conferred on Thomas I. Bergin, the first to receive that degree from any California college.

During the subsequent years the College grew in influence and attendance. Several large new buildings were added, and for many years Santa Clara College, in both equipment and scholastic standing, ranked as the leading educational institution in the west. In its sixty years of existence as a college over seven thousand students were matriculated.

THE UNIVERSITY. In 1907 lectures were commenced with a view of preparing students to enter upon the professional courses in law, medicine and engineering. In 1911 the pre-medical course was established and the law school begun. Realizing, therefore, that the College was doing the work of a university, the President, and the Board of Trustees adopted officially the name of "The University of Santa Clara," this decision going into effect on April 29, 1912.

In the summer of 1912, engineers of high standing were engaged to carry on the courses in engineering, and in the next summer a thoroughly equipped laboratory for engineering was prepared. In the same year the amount of work required by law students was increased and the classes in Law were held at night.

The outbreak of war in 1914 suspended the plans for expansion and it was not until after its close that they were resumed. In 1923 an extensive building program was commenced, with a view to provide an adequate material basis for the University, and during the following years there has been added a group of new buildings, including Alumni Science Hall, 1923; Montgomery Laboratories, Seifert Gymnasium, Kenna Hall and the Service Building, 1924; Donohoe Infirmary, 1925; the remodeling of the Auditorium in 1926; the Ricard Memorial Observatory, the Seismological and Meteorological Stations, the New Mission Church in 1928, Nobili Hall in 1930, the Varsi Library in 1931, Bergin Hall in 1938, the Delia L. Walsh Hall (Administration Building) and the James E. Walsh Hall in 1950.

Accompanying the Building Program there has come a corresponding growth in attendance and scholastic work. In 1923 the Pre-Medical course was restored, and a four year College of Business Administration added. In 1925 the College of Law was increased to four years; and the Preparatory Department transferred to a separate campus at College Park, San Jose. In 1926 the University celebrated its Diamond Jubilee and with enlarged facilities and equipment entered upon a program of greater service to the Church and state. In August, 1929, plans were formulated whereby the standing of the College of Law would be greatly increased. Since August, 1930, all classes in the College of Law previously held at night have been taught under the new plan as morning classes. This plan put the College of Law on a basis more in accordance with the standards of the American Bar Association.

In developing a program of community service, the College of Business Administration in 1947, offered a number of Evening classes to make available the services of the business faculty to the people of the area who were interested in furthering their professional competency in business.

During the academic year of 1950-51 the University celebrated its one-hundredth year of service to the community. It was fittingly commem-

orated throughout the academic year by functions of a religious, academic, civic and social nature.

SYSTEM OF EDUCATION

The Jesuit system of education aims at producing men who will possess sound judgment, high moral ideals, ability to evaluate critically, keen social consciousness. The development of the student's character as well as his intellectual progress are the objectives of Santa Clara's educational system.

To accomplish its aim the University of Santa Clara bases its education on a solid core of integrated cultural courses. This core permeates all fields of major emphasis, thereby broadening and enriching professional courses. Thus every student, following his interests and aptitudes, receives courses in language, philosophy, natural science, and social thought, according to a definite hierarchy of values and integrated into the pattern of Christian culture.

Although Santa Clara is a Catholic University, non-Catholic students who meet the academic requirements are admitted. Courses in Religion are required only of Catholic students.

GROUNDS AND BUILDINGS

Location. The University has two campuses. One, of approximately forty acres, is situated on the El Camino Real in the City of Santa Clara on the site of the third Mission Santa Clara. On one half of this campus the University buildings, grouped in series of quadrangles around the Mission Church, provide a continuation of the original Mission. On the other half of this campus are located the Athletic and R.O.T.C. fields. The second campus of the University, where special studies are pursued, comprising five acres, is located just outside the Town of Los Gatos. The University owns additional property at Santa Cruz which is used for student activities and engineering experiments.

Mission Santa Clara, built in 1822, and the Students' Chapel, built in 1887, were destroyed by fire on October 25, 1926. Through the generosity of Alumni and friends of the University, a new Mission Church, a replica of the original church, stands on the former site, the heart and center of University activities. It serves as the Students' Chapel and enshrines the priceless relics of the old Mission rescued from the fire by the heroic efforts of the Faculty and students.

The Faculty Residence, built in 1911 to replace the building destroyed by fire in 1909. It is the residence of the Jesuit community.

O'Connor Hall, built in 1912, is the gift of Mr. and Mrs. Myles P. O'Connor. On the first floor are the class-rooms of the College of Arts and Sciences. The second and third floors contain private rooms for the students. In the basement is the University Bookstore.

The Theatre, originally built in 1870 and completely reconstructed in 1926, is one of the largest theatres for amateur productions in the West, and has been the scene of such notable dramatic productions as the Passion Play and the Mission Play of Santa Clara.

Alumni Science Hall, built in 1924, is the gift of the Alumni of Santa Clara and contains offices, lecture rooms and laboratories of the Departments of Biology, Chemistry and Physics; and the electrical equipment service rooms.

Robert E. Kenna Hall, erected in 1924, is dedicated to Rev. Robert Emmet Kenna, S.J., student, professor and twice president of Santa Clara College. On the first floor are the offices, class rooms, laboratories and library of the College of Business Administration, headquarters of the Reserve Officers Training Corp, the general offices of the coaches and the general manager of athletics, and classrooms. The two upper floors contain private rooms for the lower division students.

Montgomery Laboratories, erected in 1924, are dedicated to John J. Montgomery, "Father of Aviation," one time Professor of Physics in the University. On the first floor are the materials testing, mechanical, and electrical laboratories of the College of Engineering. In 1930 a second story was added, which houses offices, drawing and lecture rooms and library.

Seifert Gymnasium, erected in 1924, is a bequest of the late Dr. George W. Seifert, B.S. '79. It houses the plunge (40x100x10), the basketball court (65x100), locker rooms for Varsity and class teams, music rooms and students' lounge room, and is the center of social life at the University.

The Service Building, erected in 1924, houses the laundry, power and heating plant and service rooms. The second floor provides a residence for employees.

Donohoe Infirmary, erected in 1925, is the gift of Miss Katherine Donohoe in memory of her father and mother, James and Rose Donohoe. It is a complete small hospital, with private rooms and ward, diet kitchen, dispensary, operating room, chapel, and offices for the infirmarian and visiting physician.

The Ricard Memorial Observatory is the gift of the Knights of Columbus of California to the "Padre of the Rains." This building, with its three domes, houses the telescopes and other instruments. An underground passageway connects the vault of the Seismic Station to the Observatory. The Seismic Station contains the 80Kg Wiechert Horizontal and Vertical Seismographs, three Galitzin Seismographs of the long range type and the two Wood-Anderson Seismographs, especially designed for local earthquakes. The Observatory likewise houses the other necessities of a station of this type, such as battery rooms, photographic dark rooms and offices where the records are kept for study and reference.

Nobili Hall, erected in 1930, is dedicated to the Rev. John Nobili, S.J., the first president of the University. On the first floor are the refectories for the Fathers, lay faculty, students, guests and employees; kitchens and service rooms. The second floor contains rooms for the lay professors as well as for the students. The third and fourth floors have rooms reserved entirely for students.

The Library. Construction of Varsi Library commenced on March 12, 1931, and the building was dedicated on October 10, 1931. The first floor has the catalogue room, offices of the librarians and the main reading room. On the second floor is the periodical room. In the stack area provision is made for 100,000 volumes, allowing for expansion. The Library was made possible through the generosity of a distinguished alumnus, Mr. James E. Walsh and wife. It was named the Varsi Library in honor of the sixth president of Santa Clara, Aloysius Varsi, a lifelong friend of the donors.

Bergin Hall is the gift to Alma Mater of her first graduate, Hon. Thomas I. Bergin, A.B., '57. This building is used exclusively for the College of Law and contains the Law Library of 14,000 volumes, moot

court, conference rooms for students and faculty, classrooms and offices of the Law Faculty.

Delia L. Walsh Hall, completed in the early months of 1950, contains the administrative offices of the University. Its construction was made possible by a substantial gift to the University by Delia L. and James E. Walsh.

James E. Walsh Hall, completed in 1950, was constructed to honor the memory of an alumnus of the University who provided most generously for the University in his will. The building contains a recreational center and living quarters for students.

de Saisset Art Gallery and Museum, completed in 1955, contains a number of art galleries and exhibit rooms. Its construction was made possible by a substantial gift to the University by the late Isabel de Saisset.

SUBSIDIARY BUILDINGS

After the war in 1946, with financial aid from the Federal and State government, additional laboratories for the science departments and for the College of Engineering, space for additional recreational facilities for students, storage buildings, apartments for 114 married veterans, were constructed. A number of these buildings, temporary in nature, are still in use.

RADIO STATION KSCU-FM

In the Fall of 1952 the Administration of the University authorized the use of one of the auxiliary Science buildings for a radio studio and broadcasting station, (KSCU-FM). This station houses equipment for broadcasting to the campus, and an F.M. station authorized by the Federal Communications Commission, which broadcasts on a frequency of 90.1 megacycles, F.M. channel 211. The station is on the air every evening from 7:00 to 11:30 p.m.

LABORATORIES

The laboratories of the departments of Biology, Chemistry and Physics are located on the three floors of the Alumni Science Hall.

The laboratories of the College of Engineering are located in the Montgomery Laboratories and provide complete laboratory facilities for engineering courses.

The Astronomical, Seismological and Meteorological laboratories are located in the Observatory group.

ENDOWMENT AND NEW BUILDINGS

The growth in the number of students and the work of the University has made it imperative that adequate buildings and endowment be provided. For this, and in order that Santa Clara may widen its scope as an educational institution of recognized standing, funds are necessary. Santa Clara stands in imperative need of an increased endowment. The work the University has accomplished in the past is an earnest of what she will do when increased facilities are afforded her. The University of Santa Clara Alumni Association is currently continuing an appeal to establish a substantial endowment which was begun on the occasion of the University's Centennial celebration in 1951.

An endowment implies a founder or founders and benefactors. During past years, many have helped the University and generous donations have been made. The new Mission Church, Faculty Residence, Donohoe Infirmary, Bergin, O'Connor, and Alumni Science Halls, Seifert Gymnasium, Ricard Memorial Observatory, Nobili Hall, Varsi Library, and the new Delia L. Walsh and James E. Walsh Halls, and the de Saisset Art Gallery are inspiring examples of such support.

But before other buildings, for which the plans of the University provide, may be added, further benefactions will be needed. Other institutions, even those state-aided and richly endowed, receive generous assistance in their work and hesitate not to ask for it. Santa Clara feels that generous friends are not lacking, though for the want of deeper thought on the matter, few realize the importance of Christian educational work, the immense sacrifice it entails, and the merit there is in cooperating and sharing with Christian educators in their work for God and country and the welfare of the young men of our generation.

The Jesuit faculty of the University has given its life services freely and gladly to the work. It enjoys the wholehearted co-operation of a large group of highly trained and competent lay associates. Those who would share in this great enterprise can do so most effectively by rendering material aid and contributing funds for the continuance and development of the work.

FORM OF BEQUEST

I give and bequeath unto the President and the Board of Trustees of Santa Clara College, a corporation duly incorporated under the laws of the State of California, a sum of ..... dollars.

NEED OF ADDITIONAL SCHOLARSHIPS

Every year deserving young men of high character and aspirations, whose means do not permit their attending the University, appeal to the Faculty for assistance to obtain the education for which their talents and vocations fit them. There is scarcely a university in the United States which is not provided with a fund for this purpose, and a relatively large per cent of successful college men spring from the class of assisted students. To contribute to such a purpose is clearly a noble benefaction. But this is especially so with regard to those who apply for help to the University of Santa Clara. They are as a rule young men of high standing, who understand the paramount value of an education in a university which aims at the highest intellectual development of the student, while devoting no less attention to the balanced development of his moral character. As a consequence, to assist them in attaining their desire is to aid picked young men whose future is more than ordinarily full of promise, and who are destined to exert a most powerful influence on those among whom their lives will be spent.

Through the generosity of friends of the University a few such scholarships have been established, but there is need for many additional scholarships, either through permanent endowment or by annual gifts.

SCHOLARSHIP QUALIFICATIONS

Besides the conditions laid down by the donors, all scholarships administered by the University are subject to the following conditions:

First: In selecting students for scholarship benefits, the Committee requires evidence of financial need. From the applications which satisfy the above requirement, preference will be given to students with higher scholastic attainments.

Second: Students who are recipients of scholarships must maintain an average of at least 1.50 (C+) and be approved by the Committee on Academic Standing.

Third: In selecting students for scholarships participation in extracurricular activities will be taken into account in all cases. Such activities will be debating, dramatics, athletics, music and contributions to the University Weekly and Annual. Continuance in extracurricular activities will be required of all holders of scholarships.

Fourth: Any student benefiting by a scholarship who has a semester average below passing in any subject will automatically forfeit said scholarship.

Fifth: A student who holds a scholarship must renew his petition for a scholarship each year. Petitions for new or renewed scholarships must be submitted during the month of April to the Secretary of the Committee on Scholarships.

Sixth: Scholarships may be cancelled at any time by the Administration for any infraction of the rules and regulations of the University.

FRESHMEN: Incoming freshmen students must fulfill the following conditions in order to qualify for a scholarship:

A special scholarship application, obtainable from the University, must be submitted to the Committee on Scholarships by March 1 of the year in which the student intends to matriculate. On this application the student must present evidence of financial need.

In addition, a transcript of all previous schooling must be furnished and letters of recommendation from the high school principal and senior counsellor.

To qualify academically, the applicant must take the scholastic Aptitude Test, administered by the College Entrance Examination Board, and have the results sent to the Committee by the date indicated on the University's application.

DESCRIPTION OF SCHOLARSHIPS

Alumni Scholarship: a perpetual scholarship provided by "The Alumni Scholarship Fund" ($1,620) established in 1945 by the University of Santa Clara Alumni Association for the benefit of a deserving student.

Jesse W. Bryan Scholarship: a perpetual scholarship provided by a gift ($12,500) in 1913 from Mrs. Sarah A. Bryan of San Francisco in memory of her son, Mr. Jesse W. Bryan (S.C. 1891-92), for the benefit of a resident student.

Magin Catala Scholarship Fund: a perpetual scholarship ($200) contributed and partially found in 1954 by the Catala Club of the University of Santa Calra for the benefit of a deserving and needy student majoring in Liberal Arts, to be designated by the President of the University.

James W. Coffroth Scholarships: perpetual scholarships provided from the Trust Fund ($18,800) established in 1943 at the Wells Fargo Bank, San Francisco, by the bequest of James W. Coffroth of San Diego, for the benefit of needy undergraduate students.

F. W. Conlogue Scholarships: annual scholarships (totaling $1,000) contributed in 1949 and subsequently by F. W. Conlogue of Boulder Creek for needy and deserving Catholic students of America.

Robert L. Coward Scholarships: annual scholarships ($550) contributed in 1918 and subsequently by friends of the University in memory of Mr. Robert L. Coward (S.C. 1896-99), for the benefit of needy and deserving students who are outstanding for contributions to the extracurricular activities of the University.

Katherine Connor Scholarships: perpetual scholarships provided by a bequest ($4,500) in 1942 from Miss Katherine Connor of San Jose, for the benefit of students designated by the President of the University.

de Saisset-Filipello Scholarship: a perpetual scholarship provided by a gift ($1,500) in 1944 from Miss Isabel de Saisset and Mrs. E. A. Filipello of San Jose, for the benefit of a student designated by the President of the University.

James Dunne Scholarships: fifteen perpetual scholarships provided by a gift ($224,604) in 1931 from Mrs. Viola K. Dunne of Hillsborough, in memory of her husband, Mr. James Dunne (S.C. 1863-74), for the benefit of resident students from the State of California.

Mamie H. Evans Scholarships: perpetual scholarships provided by "The Mamie H. Evans Memorial Scholarship Fund" ($9,753) established in 1938 by a bequest from Mrs. Mamie H. Evans of Butte City, for the benefit of needy and deserving students.

Paul T. Galtes Chemistry Scholarships: two annual scholarships ($300 each) contributed in 1953 and subsequently by the President of the University in honor of Paul T. Galtes, S.J., former Professor of Chemistry, (1911-1934), to be given as a result of competitive examinations to resident students majoring in Chemistry.

William C. Gianera Scholarships: perpetual scholarships and grants-in-aid provided by the Fund ($2,213) inaugurated in 1951, by friends of the University in honor of William C. Gianera, S.J., former President of the University (1945-51), for the benefit of needy and deserving students.

Robert and Guillermina Graham Scholarships: perpetual scholarships provided by a Fund ($22,387) inaugurated in 1950 by Mr. and Mrs. Robert M. Graham, (S.C. 1925-29 and former Bursar of the University), for the benefit of needy and deserving students of the Catholic Faith.

Edward J. Hanna Scholarship: an annual scholarship contributed in 1935 and subsequently by the President of the University in honor of His Excellency the Most Reverend Edward J. Hanna, former Archbishop of San Francisco, on the occasion of his Golden Sacerdotal Jubilee, and by his incumbent successor for the benefit of a graduate of the Catholic High Schools of the Archdiocese of San Francisco.

Robert L. Jacobs Scholarship: a perpetual scholarship provided by a Fund ($1,025) established in 1945 by friends of Mr. and Mrs. Leon Jacobs of San Jose in honor of their son, Robert L. Jacobs (S.C. 1941-45) who gave his life in World War II, for the benefit of a student designated by the President of the University.

Knights of Columbus Scholarship: an annual scholarship ($400) contributed in 1948 and subsequently by the California Knights of Columbus, for the benefit of a needy and deserving student.

George H. Mayr Scholarships: annual tuition scholarships (totaling $3,000) contributed in 1953 and subsequently by the George H. Mayr Educational Foundation of Los Angeles, for the benefit of needy and deserving students from the State of California.

John Paul Paganini Scholarship: a perpetual scholarship provided by a gift ($10,000) in 1945 from Mr. Charles M. Paganini and Family of San Francisco in honor of his son, John Paul Paganini (S.C. 1934-38), who gave his life in World War II, for the benefit of a student designated by the President of the University.

Benjamin Patocchi Scholarship: a perpetual scholarship provided by a bequest ($8,000) in 1949 from Mr. Benjamin J. Potacchi of Sonoma County, for the benefit of a student designated by the President of the University.

Peninsula Chapter Alumni Scholarship: an annual scholarship ($600) inaugurated in 1954 and annually contributed by the Peninsula Chapter of the University of Santa Clara Alumni Association for the benefit of a deserving and needy student of the Peninsula communities, to be designated by the officers of the Peninsula Chapter and the President of the University.

James D. Phelan Scholarships: perpetual scholarships provided by a bequest ($50,000) in 1931 from the Hon. James D. Phelan, former mayor of San Francisco and United States Senator, for the benefit of students designated by the President of the University.

Radio Corporation of America Scholarship: an annual scholarship ($800) contributed in 1950 and subsequently by the Radio Corporation of America, for the benefit of an undergraduate student of high academic rank in The College of Science or Engineering.

Catharine Sexton Scholarship: a perpetual scholarship provided by a bequest ($18,000) in 1946 from Mr. John E. Sexton, Jr., of Palisade, Nevada, in memory of his mother, Mrs. Catherine Sexton, for the benefit of a resident student from El Dorado County, California.

John E. Sexton, Sr., Scholarship: a perpetual scholarship provided by a bequest ($18,000) in 1946 from Mr. John E. Sexton, Jr., of Palisade, Nevada, in memory of his father, Mr. John E. Sexton, Sr., for the benefit of a resident student from El Dorado County, California.

John E. Sexton, Jr., Scholarship: perpetual scholarship provided by a bequest ($18,000) in 1946 from Mr. John E. Sexton, Jr., of Palisade, Nevada, for the benefit of a resident student from Eureka County, Nevada.

St. Clare Scholarships: two annual scholarships ($300 and $200) contributed in 1953 and subsequently by the President of the University, for the benefit of a resident and non-resident student from Bellarmine Preparatory College, San Jose.

St. Ignatius of Loyola Scholarships: two annual scholarships ($300 each) contributed in 1935 and subsequently by the President of the University, for the benefit of resident students in the College of Engineering from, respectively, St. Ignatius High School, San Francisco and Loyola High School, Los Angeles.

St. Joseph's Scholarship: an annual scholarship ($300) contributed in 1935 by the President of the University, for the benefit of a resident student from St. Joseph's High School, Alameda.

St. Robert Bellarmine Scholarships: two annual scholarships ($300 and $200) contributed in 1935 by the President of the University, for the benefit of a resident and non-resident student from Bellarmine Preparatory College, San Jose.

Alice Phelan Sullivan Scholarship: a perpetual scholarship provided by a gift ($6,500) in 1912 inaugurated by "A Friend" in memory of Mrs. Alice Phelan Sullivan of San Francisco, for the benefit of a student designated by the President of the University.

Union Carbide Scholarships: four annual scholarships (covering tuition, fees and necessary books) contributed by the Union Carbide and Carbon Corporation for the benefit of promising and needy students intending careers in business or industry, to be selected by the Committee on Scholarships and the Union Carbide faculty advisor, one scholarship to be inaugurated each year beginning 1954.

University Achievement Scholarships: eight annual scholarships (six $300 and two $700) offered under competitive examination in 1953 by the President of the University, for the benefit of resident or non-resident students.

University Award Scholarships: annual scholarships ($200 to $400) contributed in 1930 and subsequently by the Jesuit Fathers of the University, for the benefit of needy and deserving students.

Frank and Alice Walterstein Scholarships: perpetual scholarships provided by a bequest ($35,916) in 1949 from Mrs. Alice Walterstein, for the benefit of students designated by the President of the University.

Western Gear Works Engineering Scholarships: annual scholarships ($500 each) contributed in 1953 and subsequently by Western Gear Works, Los Angeles County, in honor of P. L. Bannan, Sr., Founder, to be given under competitive examinations to students in the College of Engineering.

Loan Funds

The following Loan Funds are available to students for educational expenses under certain conditions established by the University.

The Catala Club Loan Fund: This fund, established and administered by the Catala Club, is available for students in the Senior, Junior, and Sophomore years to enable them to continue and complete their education at the University. The Catala Club is an association of the mothers of present and past University students and of other women interested in the work of the University. Its officers may be contacted by addressing The University.

The College of Law Loan Fund: This fund, provided by a bequest ($750) in 1948 from Mr. William G. Berg in honor of his parents, Mr. and Mrs. Herman E. Berg, is available at low rate of interest for students of the College of Law. Application may be made through the Dean of the College of Law.

STUDENT EMPLOYMENT

Employment is available at the University for a small number of students who need to earn the means to defray part of their school expenses. Positions range from that of assistant in the dining hall to that of secretary to a teacher. The compensation is according to the number of hours given to the work, and the amount earned is applied on the student's account with the University. Preference for employment is given to worthy students of high scholastic standing. All students so employed must carry their regular schedule with an overall semester average of "C".

EXPENSES

Application Charge $2.00

An **Evaluation Charge** for the processing and correspondence entailed in Applications for Admission to the University is required of all students. This charge is to be sent with each application form and is not refundable.

Total Tuition and Fees (per semester) $275.00

The **Tuition and Fees** charge for all students both resident and non-resident in the Colleges and Schools of the University is to be paid prior to or at the time of registration. This charge provides for all the educational services at the University, such as matriculation. instruction, counseling, library, laboratory, ordinary medical services, student publications (exclusive of The Redwood) and activities, and military science. $50.00 of this total charge is to be paid within the time specified in the notice of acceptance, and is refundable only if the student cancels his acceptance at least three weeks before registration.

Extraordinary Services

Students who, because of delay or absence or because of extraordinary needs and added services, require special attention are held to defray the costs of such services and attention.

Late Registration—the first day	$ 2.50
each day thereafter	1.00
Late or anticipated examinations, each	2.00
Remedial English Course—Subject "A"—each course	10.00
Late submission of administrative forms (e.g. pre-registration, application for degree, etc.) each	2.00
Charges for damage or loss in Residence Halls or in Military equipment will be billed directly to the student and parents upon report of damage or loss.	
Breakage Card—required for Chemistry courses — unused amount returned to student at close of course	5.00
Additional copies of the student's transcript of grades, each	1.00
Summer Surveying Course (for Engineers)	50.00
Graduation	15.00

Residence

Room and Board (per semester) 350.00

This charge provides for residence and for board during the academic semester. For students desiring these services during the Christmas recess (usually over two weeks) an extra charge of $50.00 will be made.

Resident students should bring their own blankets and bed spread. Sheets and pillow-cases are furnished by

the University. The student wardrobe is regulated only by the request that levis be not worn on the campus.

Laundry Deposit (per semester) .....$ 35.00

Students desiring the optional service of the University Laundry are required, for facilitating payment, to establish a credit of at least $35 at the beginning of each semester. Unused laundry credit will be either applied against other unpaid expenses or refunded.

"Special Student" Expense

A "Special Student" is one who though taking courses at the University is not a candidate for its degrees (cf. page 40). For such students the **Tuition and Fees** charge shall be $22.00 per credit hour.

Method of Payment

All charges are to be paid in advance of registration. Hence, students should come prepared to pay all charges on the day of registration, or should have payments from home definitely in the mail so as to reach the University at least **one week** prior to the date of registration.

Arrangements for Deferred Payments (installments during the course of the semester) can be sanctioned only in particular cases and with the approval of the President. **These arrangements must be completed at least a week before the date of registration.** For this added service a processing fee of $1.00 per payment will be charged.

Remittances should be made payable to the "University of Santa Clara" and mailed to the Treasurer's Office.

Students who have unpaid bills at the University or who defer payments without approval are subject to dismissal from the University and, as long as such bills remain unpaid, may not receive transcripts of credits nor any diploma.

Refunds

There will be no refund of Extraordinary charges

Refund of Tuition and Fees. Students who withdraw from the University may receive refunds of this charge according to the following scale of withdrawal:

—within one week after registration: payment refunded minus $ 50.00

—within two weeks after registration: payment refunded minus 90.00

—within two to four weeks after registration: payment refunded minus 150.00

For withdrawal after four weeks of classes there will be no refund of this charge.

Refund of Room and Board. Refunds of this charge will be made according to the following scale of withdrawal:

—within the first six weeks: unused portion of payment (prorated as from the Monday following withdrawal) minus....$100.00

—within the second six weeks: unused portion (prorated as above) minus 67.00

—within twelve to seventeen weeks: unused portion (prorated as above) minus 33.00

—after the seventeenth week: no refund will be made.

(Refunds cannot be processed until a month after the student's withdrawal.)

Infirmary Services

Basic medical services are provided to all students. These services include ordinary medical and prescription services of the University physician, and ordinary attendance of the University nurses and Infirmary staff. Medicines, X-ray services, etc., will be charged at standard prices. Rooms in the Infirmary are restricted to resident students, who will be charged five ($5.00) a day for the special services entailed.

UNIVERSITY BOOKSTORE

The University Bookstore, located in the basement at the north end of O'Connor Hall, is completely equipped to serve the students of the University in furnishing all books and supplies necessary for their courses. Engineering students will find a varied selection of fine drawing instruments and slide rules. Also available are typewriters, stationery, fountain pens, religious articles, subscriptions to magazines, etc., etc.

An average cost of books alone would be about $40.00 for students in the Arts and Science course and for students in Business Administration. Costs will be about $60.00 for Engineering students. These estimates do not include the cost of slide rules and special instruments for special courses.

STUDENT ORGANIZATIONS

College life must include the development of the social side of every student's character. Marked initiative and leadership in organized religious and social movements for the common welfare of his fellows, are qualities expected of college men generally. For this purpose the University student organizations and activities furnish splendid opportunity.

RELIGIOUS ACTIVITIES

As the first thought of the University is the encouragement of a sound religious life on the part of the student body, special attention is given to those sodalities and religious organizations sponsored by the Church, some of which have existed at Santa Clara for approximately a century.

Sodality of the Immaculate Conception. Its object is to promote in its members a special and filial devotion to the Immaculate Mother of God, to imitate her virtues, to encourage, both by word and example, an eminent purity of morals and a manly fidelity to the practice of religion.

The League of the Sacred Heart. The object of this Association is to foster in the students an earnest religious spirit, particularly a deep and tender love towards our Lord in the Sacrament of His Love, and a consequent reparation for the offenses committed against Him. To this end the First Friday Communion is zealously encouraged.

The Saint John Berchmans' Sanctuary Society. This society has as members those students who as a reward for good conduct and exact application to their studies have been allowed to serve at Mass and assist at the other services in the Mission Church.

STUDENT CONGRESS OF THE UNIVERSITY

The Student Congress of the University is the student body organized for the encouragement of student activities, and such other work as may be recommended by the Faculty and Administration.

NATIONAL HONOR SOCIETIES

Alpha Sigma Nu. Alpha Sigma Nu is a National Honor Society with chapters in various Jesuit Colleges and Universities throughout the United States. It is a society organized of honor students who have distinguished themselves in Scholarship, Service and Loyalty to their College or University.

Pi Delta Sigma. The Pi Delta Sigma is a professional, engineering honor fraternity which has been inaugurated at the University of Santa Clara to encourage and to recognize outstanding scholarship and exemplary character among the undergraduate members of the College of Engineering Members are selected on the basis of their "Scholarship, Integrity, and Diligence."

NATIONAL SOCIETIES

Alpha Phi Omega. The Eta Alpha Chapter at the University of Santa Clara is a chapter of the Alpha Phi Omega national service fraternity. This is an honor fraternity composed of students who are above average academically and who are outstanding in campus activities and in their loyalty to the University and student-body. It is neither secret nor a social fraternity, and its members are selected on the basis of "Leadership, Friendship and Service."

Delta Sigma Pi. Sigma Xi Chapter of the University of Santa Clara is a chapter of the Delta Sigma Pi National Commerce Fraternity. This is a professional fraternity composed of students in the College of Business Administration who are above average academically and who are leading students in activities in the College of Business Administration. It is neither secret nor a social fraternity and its members are selected on the basis of academic standing and professional interests in the business field.

The National Federation of Catholic College Students. The National Federation of Catholic College Students is a union of Catholic Colleges in the United States dedicated to training its members to assume leadership in the post-college community. Through an extensive system of commissions which includes the principal fields of extracurricular college activities, the Federation strives to promote student awareness of community responsibility, the need of Catholic lay leadership, and the inherent unity of Catholic College people. The Federation also acts as a center for the exchange of information about student affairs.

The Santa Clara unit is active not only in the national organization but in the regional unit of the San Francisco archdiocese.

DEPARTMENTAL ORGANIZATIONS

Each department of the University has its own organization for the study of technical problems and for the encouragement of social life among the students of the department.

The Engineering Society. This is an organization made up of students in the College of Engineering with the object of familiarizing them with the conduct of meetings of public bodies and the acquisition of ease in public speaking. Lectures to the engineering students are given before this body by guest speakers.

The Business Administration Association. This is an organization of students in the College of Business Administration for the study of business problems and for the encouragement of social activities among the students of the College. Frequent lectures are given before the Association by business men of prominence.

Mendel Club. This is an association of students preparing for the study of medicine, organized for the study of scientific subjects and the encouragement of such activities as are of particular interest to the students of this department.

The Student Bar Association. This organization exists to encourage fellowship, to foster individual initiative, to provide an organ for the expression and execution of constructive ideas and to provide a liaison body between students and faculty. It sponsors student activities and develops a sense of professional responsibility in its members. Its organization is patterned after that of the State Bar of California. Its membership is open to all students in the College of Law and all students are urged to become members of the Association in order that they may share in the benefits of such membership.

The International Relations Club. This is an association of the students interested chiefly in Political Science. The purpose of this organization is the study of international problems of both the past and the future. It is affiliated to the Carnegie International Clubs.

The Galtes Chemistry Society. This organization is made up of students in the Department of Chemistry whose object is to encourage the students in the study of Chemistry and to further such activities as are of interest to students of Chemistry.

The Nobili Club. Named to honor the memory of the first president of Santa Clara, Rev. John Nobili, S.J., the Nobili Club is the official language club on the campus. Its purpose is twofold: First, it aims to foster among the students interest in the countries and civilizations which have contributed to the culture of the world. Secondly, it supplements the academic language courses and encourages interested students to pursue more intensively this study of the ancient and modern languages.

Day Scholars Association. An association of non-resident students to promote active participation in student affairs.

Scabbard and Blade. Scabbard and Blade is a national Honor society composed of selected members of the Advanced Course ROTC. Its purpose is to unite in closer relationship the military departments of American Universities and Colleges; to preserve and develop the essential qualities of good and efficient officers; to prepare members as educated men to take a more active part and to have a greater influence in the military affairs of the communities in which they may reside and above all to spread intelligent information concerning the military requirements of our country.

Blackstone Pre-Legal Society. The Blackstone Pre-Legal Society is composed of undergraduate students who aspire to attend law school and wish to acquaint themselves with the general duties of the legal profession before beginning their graduate work. Pursuant to this orientation program, semi-monthly meetings are held at which some prominent member of the legal profession explores a major field of law from the lay-man's point of view. Periodically, introductory lectures are given by the law school faculty on the basic subjects of law school. Student participation is encouraged at all times.

In order to facilitate the transition from undergraduate school to law school the Blackstone members are included in several law student activities and social functions. A member of the law school faculty acts as advisor. A nominal fee is self-imposed for membership cards.

The Thomists. An organization of upperclassmen interested in exploring advanced philosophical issues, and in correlating philosophy with

the other sciences and the humanities. Guest speakers from within the University and from neighboring colleges and universities are invited, from time to time, to speak to the club.

Staff-Radio Station KSCU-FM and Campus Radio. Students who because of their knowledge of physics and engineering are interested either in the technical operation of a radio station or because of their interest in dramatics and music are interested in the administration and programming of entertainment, may through participation in staff activities advance their practical knowledge of radio communications. This activity is under the direction of the staff of the Physics Department.

DRAMATICS

A high standard of dramatics has been set at Santa Clara from the beginning. Earliest records show that classical productions were quite the accepted thing even in the fifties.

Dramatic productions are staged, giving opportunity to a large proportion of the student body to participate. In the past these productions have included such notable performances as "The Mission Play of Santa Clara" and "The Light Eternal" by Martin V. Merle, '06, and "The Passion Play of Santa Clara" and "The Weaver of Tarsus" by Clay M. Greene, '69. The organization for promoting Dramatics is the **Clay M. Greene Players.**

DEBATING

Debating societies are maintained which arrange each year intercollegiate debates with representative colleges and universities. The traditional debating society on the campus is the Literary Congress which held its first meeting on February 22, 1857. It consists of two Houses, the Philalethic Senate and the House of Philhistorians.

MUSIC

The University Band and Orchestra furnish their members with the opportunity for ensemble playing at the public exercises of the University.

The University Choir and Glee Club furnish vocal music for services in the Mission Church and the public exercises of the University.

The ROTC Band performs for military drill and ceremonies in which the remainder of the corps of ROTC cadets participates both on and off the campus.

PUBLICATIONS

"The Santa Clara." The "Santa Clara" is the official weekly newspaper of the University. The aim of the "Santa Clara" is: To publish the news of the University, to aid in constructive work, and to afford the students of Journalism an opportunity for actual practice in newspaper editing, managing and make-up.

The "Redwood." The "Redwood" is the University annual published by the students to serve as a record of University activities, and as an expression of the student life of the University.

The "Owl." The "Owl" is a quarterly literary magazine. This publication offers a medium for literary work among the students. The name was taken from the first literary magazine of the University founded in 1869.

ATHLETICS

Athletics at Santa Clara are directed by the Athletic Council and the Faculty Representative for Athletics, by whom arrangements for intercollegiate and intramural contests are made.

Block S. C. Society. Members of the University teams who have secured the University letter are organized into the Block S. C. Society in recognition of their athletic ability and for the encouragement of a high standard of athletic conduct.

The Athletic Managers Association is composed of volunteers from each class who cooperate with the management in the conduct of games and the care of equipment.

Intramural Sports. Facilities for the athletic activities of the student body are provided by the gymnasium with its basketball court, boxing and wrestling room, and swimming pool; by centrally located tennis and handball courts; and the extensive athletic fields for football, baseball, track, softball and volleyball. A program of intramural athletics in which all students are encouraged to participate is conducted under the direction of the Director of Physical Education.

AFFILIATED ORGANIZATIONS

The Faculty Club. This is an organization of the religious and lay members of the Faculty, organized as a means to become better acquainted with the problems confronting the various departments and to mould the Faculty into a solid working unit. Educational, scientific and ethical problems are discussed by the members.

The Faculty Bulletin. The Faculty Bulletin is a monthly publication which is produced expressly "for and about the faculty" of the University of Santa Clara.

Alumni Association. The object of this association is to strengthen and perpetuate college friendships, to preserve in former students a warm regard for Alma Mater and a lively memory of the substantial benefits she has bestowed, to cherish and advance her interests, to maintain her honor and sustain her reputation by manly and honorable conduct. Officers of the Association are:

William V. Regan, Ph.B., '33, President
James A. Arnerich, A.B., '35, Ll.B., '38, First Vice-President
Arthur P. Calou, '33, Second Vice-President
Francis J. Murphy, B.C.E., '44, Third Vice-President
Richard J. Lautze, B.S.C., '39, Treasurer
John F. O'Hara, Ph.B., '39, Ll.B., '46, Secretary

The activities of the Alumni Association are recorded in the quarterly "Santa Claran," published and distributed to members of the Association by the Office of the Alumni Secretary.

PRIZES

The following extraordinary prizes are open to competition on the dates announced in the University Calendar. The Faculty Committee on Scholastic Standing reserves the right not to award any of these prizes in the absence of sufficient competition or a meritorious grade of scholarship. No one is eligible to compete a second time for a prize which he has already won, except after an interval of one year. Students who have not been in attendance for both semesters may not compete.

Nobili Medal. An annual prize of $60 founded by Joseph A. Donohoe, Esq., in honor of the first president of Santa Clara, Rev. John Nobili, S.J.,

to be given to the student who shall be judged outstanding in personal conduct, school activities, and studies.

Two Silver Medals to be given to the following students who become most distinguished for good conduct and application to study:

1. The most distinguished **Resident** student.
2. The most distinguished **Non-Resident** student.

Santa Barbara Medals. Four gold medals given by the President of the University will be awarded annually, on the recommendation of the Professor in Military Science and Tactics, to the outstanding cadet in each of the four years of training.

The Religion Prize. A purse of fifty ($50) dollars, given by the President of the University (1950), to be awarded annually to an upper division student, for proficiency in religion, selected on conditions set down by the Religion Department.

The Michael Shallo Prize in Philosophy. A purse of fifty ($50) dollars donated by the President of the University (1950) for the student selected by competition as most proficient in Philosophy.

The Ryland Prizes. The Hon. Caius T. Ryland founded in 1897 an annual purse of $45.00, leaving its disposition to the discretion of the Faculty. This the Faculty, after due consideration, assigned to the University Literary Congress, organized February 22, 1857, establishing the Ryland Debate to be held yearly between the two branches, the Senate and the House, and divided the purse into three prizes of $20.00, $15.00 and $10.00, respectively. By an agreement between these societies, each in turn selects the subject to be debated, and the other is granted the choice of the side it will defend.

The McCann Prize. Annual prize of $25.00 founded in honor of Daniel B. McCann, B.S., '84, to be given for the best short story.

The Redwood Prize. Annual prize of $25.00 founded in 1908 by the executive committee of "The Redwood," and given for the best essay on an historical subject.

The Owl Prize. An annual prize of $25.00 founded by the directors of the former College Magazine, "The Owl," to be given to the winner of an oratorical contest in the University.

The William H. Leahy Prize. A gold watch, valued at $50.00. This prize was founded in honor of Mr. William Leahy by his wife and his brother, Mr. James Leahy, for the winner of the Dramatic Art Contest.

The Handlery Prize. An annual prize of $50.00 founded by Mrs. Rose Handlery in memory of her son, Raymond, of the class of 1934 to be given to the senior student of the University who will have contributed most to the success of any of the University student publications.

The Orella Prize. An annual award of $25.00 established in 1915 by the late Dr. Firmin R. Orella, B.S. '89, and founded in 1945 by his wife, Albertine S. Orella, to be given to the senior student in the Department of Science who attains the highest average in scientific subjects during the junior and senior years.

The Shipsey Poetry Prize. An annual prize of $50.00 founded in 1954 by Richard M. Schmidt in honor of the late Reverend Edward Shipsey, S.J., to be presented to the student selected by the Faculty of the Department of English for the most outstanding contribution in the art of Poetry.

The Chargin Prize. An annual prize of $50 to be given, in honor of Mr. and Mrs. Joseph A. Chargin, Sr., to the senior in the College of Law who has maintained the highest class average throughout his law course.

Business Administration Prize. An engraved key given by the Business Administration Association to the senior in the College of Business Administration who shall have made the greatest contribution to the College of Business Administration.

Delta Sigma Pi Key. An engraved key given by the Delta Sigma Pi to the senior in the College of Business Administration with the highest scholastic average.

ADMISSION TO THE UNIVERSITY

Those who wish to apply for admission to the University should proceed as follows:

1. Secure an application form from the office of the Registrar either by mail or by calling at the office. This should be done in the Fall preceding the desired Fall date of entrance.

2. Send the completed application to the office of the Registrar in February preceding the desired Fall date of entrance, together with the Application Service Fee of two dollars ($2.00).

3. Request all high schools or colleges previously attended to send directly transcripts of completed preparatory work. These records should be prepared and sent to the Registrar during February or March.

4. Two testimonial letters certifying to the good moral character of the applicant should be sent also in February or March.

No application for admission can be considered until the applicant has complied with all four points above.

Scholarship Credentials

Candidates for admission to any of the undergraduate courses of the University must qualify:

(a) For admission to Freshman standing:
By presenting evidence of graduation with better than average grades from the regular four-year high school course of the Preparatory Department of this University (Bellarmine Preparatory School, San Jose), or of a similar course in an approved high school.

(b) For admission to the undergraduate course of his choice:
By presenting high school courses in accordance with the appropriate pattern indicated below:

	A.B.	B.S. B.S.C.	Engr.
English	3	3	3
Latin*	4		
Foreign Language*		2	2
Algebra	1**	1**	2
Geometry	1	1	1
Trigonometry			½
History	1	1	1
Laboratory Science	1	1	2
Optional, advanced course in Foreign Language, Mathematics or Laboratory Science	1	1	
Unprescribed units	3	5	4½

*Students entering with only two units of Latin for the A.B. course will be given an opportunity to make up these deficient units for credit during the first two years of college. Students who in rare cases are accepted without two years of Foreign Language (these units must be in the same Foreign Language) will be given an opportunity to make up these deficient units but for no credit towards their degree.

**Sudents planning to major in Science (Biology, Chemistry or Physics) should present a B average in high school subjects and should present the same number of units in mathematics and science as those required for Engineers.

It is strongly recommended that the unprescribed units be in Mathematics, Languages (preferably Latin), Laboratory Sciences, or Social Studies.

No credit is ordinarily allowed for physical education or music. One unit each may be accepted for commercial subjects, vocational subjects, and mechanical drawing.

Half units will be accepted only when presented in addition to integral units in the same subject or in half year subjects which constitute a complete course in themselves, e. g., Solid Geometry. Any two of the biological sciences (Physiology, Botany, Zoology) may be combined into a continuous year's course equal to one unit.

A matriculation deficiency in a subject continued in the University in which the deficient student attains a grade C, may be removed by the proper faculty, on the recommendation of the professor. Students, however, are cautioned not to assume in advance that this will be done.

Admission to Advanced Standing

Admission to advanced standing is by specific action of the Committee on Academic Standing, which will evaluate all credits presented and determine the rating of the candidate.

Students from other institutions of recognized collegiate rank, including Junior Colleges with well established courses, may be admitted to such standing and upon such terms as the Committee shall deem equitable. Every such candidate is required, besides the prescribed testimonials of character and scholarship, to present a catalogue of the institution in which he has studied, and a full statement, duly certified, of the subjects he has therein completed and of the subjects there presented for entrance. The University reserves the right to determine after a test of at least one semester the amount of credit that the applicant may receive, and meanwhile he shall have the status of an unclassified student.

Admission of Special Students

Candidates for admission as special students must be persons of mature age who desire to take up special work in one department or in one subject with its related branches. Such special students are not candidates for a degree, but they may become candidates by satisfying the requirements for a regular course. No one will be admitted directly from a secondary school to the status of a special student. Entrance examinations in the subjects of fundamental importance for the work proposed will be assigned in practically all cases. Registration as a special student is for one semester only and no one may register for less than ten hours. Re-registration will be refused if the student has not shown earnestness and definiteness of purpose or if his work has been unsatisfactory in whole or in part.

Admission of Foreign Students

Candidates for admission who come from foreign countries must present original and complete educational credentials, together with a catalogue giving full description of the courses. Provisional registration may be then given pending verification of the record and until the student concerned has successfully completed one semester's work of not less than twelve hours, when permanent matriculation may be given. Students from other than English-speaking countries must, in addition, possess sufficient knowledge of English to carry satisfactorily their class work.

REGISTRATION

Directions for registering are mailed to each applicant with his letter of acceptance.

The Committee on Admissions acts on applications for entrance to the University during the early Spring and will notify at that time by letter all accepted applicants.

Candidates, upon receipt of final notification of the acceptance of their applications, are obliged to forward a guarantee fee of fifty dollars ($50). This is not an additional charge, but will be credited to the student's account after registration. It will be forfeited only if the student fails to register without giving the University three (3) weeks advance notice.

At the time of their acceptance for entrance to the University all candidates will receive a medical examination form which must be filled out completely and signed by a physician and returned to the University before the student registers. Candidates who do not present the form before registration must do so before the end of the first two weeks of the semester.

Due to the fact that registration in the separate colleges of the University is limited, each acceptance is for a specific college, hence, a student will not be permitted to register in any college except the one for which he has been accepted. Any student who desires to change his course or to cancel his reservation must do so prior to three (3) weeks immediately preceding the day of registration.

Before registering for instruction in any department, the student must obtain a card signed by the Treasurer of the University, showing that a satisfactory settlement of his account has been made. This card is handed to the Registrar, from whom the student will receive his registration forms.

FRESHMAN ORIENTATION

Students accepted for the Freshman Class in the Fall of each academic year are brought to the Campus for Registration three days before the upper classmen for Placement Examinations and Orientation Lectures. A complete battery of Standard tests designed to measure the academic proficiency of the entering Freshman is given during these days. The test periods are interrupted by lectures on the traditions of the University, its organization, and the opportunities in religious, academic and social activities. All entering Freshmen are expected to participate.

Examination in Subject A

All lower division entrants in the colleges at Santa Clara must, at the time of their first registration in the University, take an examination, known as the Examination in Subject A, designed to test their ability to write English correctly in spelling, grammar, diction, sentence structure and punctuation.

All students who do not pass in the examination in Subject A will be required to take, immediately after their failure, a course of instruction known as the Course in Subject A, without unit credit toward graduation. This course will be given each half year two hours a week for the semester, beginning one week after the examination. Every student who is required to take the course in Subject A will be charged a fee of $10.00 and the charge will be repeated each time he takes the course.

RELIGIOUS TRAINING

To cultivate the heart, no less than to develop the intellectual and physical faculties of the student, is a duty kept constantly and sacredly in view.

As the University professes the Catholic religion, the exercises of religious worship are Catholic; but members of any religious denomination are received, provided they be willing, for the sake of order and uniformity, to conform respectfully to the religious observances of the University. All students are required to attend chapel lectures and the lectures of the annual Retreat.

Without religion there can be no education in the truest sense of the word, that is to say, no complete and harmonious development of the intellect and heart of man. The University holds, furthermore, that religious truth, being definite and certain, may be taught with as much exactness as language or any other branch. Accordingly the study of Christian Doctrine is required of every Catholic student and two periods weekly are devoted to it in every class of every course. Academic credit is allowed for this work. Students who are excused from taking Religion courses, must present an equivalent number of units in another field in order to meet the graduation requirements of their college.

STUDENTS' HEALTH SERVICE

The University exercises supervision over the health of students. A physician is in daily attendance at the University without extra charge for minor cases. A certificate of health from the home physician is required of each student at the time of registration.

In accordance with the recommendation of the State Board of Health all students must present a certificate of vaccination or be vaccinated by one of the University physicians.

The University assumes no responsibility for injuries sustained by any student during play, in the swimming tank, in the gymnasium, or during athletic contests.

MILITARY SCIENCE

The University maintains a Senior Division Unit of the Reserve Officers Training Corps, to provide facilities whereby students can better prepare themselves for their citizenship responsibilities. The ROTC mission is to produce junior officers who have the qualities and attributes essential to their progressive and continued development as officers in the Army of the United States. The Course affords a means for practical training in organization, leadership, and discipline which will be of value to the graduated students in an industrial or professional career.

The program followed is General Military Science as contrasted to the former single-branch which involved a training program for duty in one specific branch of the Army. The future graduate will be commissioned in the branch for which he is best qualified and in which there is a vacancy. Branch specialization takes place while the officer is serving on active duty.

The curriculum includes a two-year basic course and a two-year advanced course. All undergraduates are required to take the two-year basic course unless exempted by the Professor of Military Science and Tactics. All students at the time of initial entrance to the University must report to the Military Department for enrollment in military training.

All undergraduates are required to take the two year basic course unless exempted by the Professor of Military Science and Tactics. All students at the time of initial entrance to the University must report to the Military Department for enrollment in military training.

Exemptions from military training may be granted in the following cases:

1. Veterans of the Armed Service.

2. Students who have reached the age of 23 years at the time of initial registration at the University.

3. Physically disqualified as certified by the University Physician.

4. Non-citizens of the United States.

5. Students whose military training at other universities or military academies is accepted by the Professor of Military Science and Tactics as fulfilling the requirements.

6. Students entering the University with upper division standing.

Petitions for exemption from, or deferment of, military training will not be received after enrollment in military courses, except for physical disability occurring following enrollment.

Students exempted from military training must offer an equal number of units of other work in lieu of military science and tactics in order to receive a degree. Selection of these courses must be approved by the Dean of the College in which the student is registered.

Admission to the Advanced Course is limited to those students under 27 years of age who have completed the two years basic course or whose military training otherwise qualifies them to pursue the Advanced Course provided current academic and physical requirements are met.

Students who meet the above requirements will be selected by the President of the University and the Professor of Military Science and Tactics for continuance in the Advanced Course.

Advanced Course Students are under contract with the government to complete the advanced course training unless sooner discharged for the convenience of the government and will be paid a monthly monetary allowance at a daily rate equal to the value of the Army ration ($.90 per day) for a period of not to exceed 595 days.

Advanced Course Students are required to attend one summer training camp of six weeks duration and will be paid at the rate prescribed for a soldier of the 1st grade ($78.00 per month) and in addition will be allowed a travel allowance of 5 cents a mile to and from camp.

Students who complete the Advanced Course are eligible for appointment and commission by the President of the United States as an officer in the United States Army Reserve.

Students who desire a commission in the Regular Army may elect upon appointment as an officer in the Army Reserve, to serve a tour of active duty with the Army and to be commissioned in the Regular Army on a competitive basis. Or, a student who has received his academic degree and has been designated by the President of the University and the PMS&T as a "distinguished military graduate" may, upon application, be commissioned directly in the Regular Army.

Uniforms and text books are furnished by the Government without cost to the student.

At the end of the school year, or if the student leaves the University prior to that time, all Government property including texts must be

returned to the Military Department. Any loss or damage to equipment must be paid for by the student.

Each student who signs the ROTC deferment agreement is placed in classification 1-D which defers him from active service while he is a student in good standing at the University and until he receives both his baccalaureate degree and his reserve commission as a second lieutenant. This deferment is cancelled immediately upon the withdrawal from the ROTC course, basic or advanced.

RESIDENCE

The University maintains four large residence halls for the convenience of those students whose homes are not within commuting distance. However, since these facilities are inadequate to house all applicants, students are permitted to live off campus by fulfilling any one of the following conditions:

1. Those living with parents or near relatives.
2. Students over 21 years of age.
3. Upper classmen (Sophomores, Juniors and Seniors) under 21 years of age who have obtained written authorization from a parent or guardian.
4. Freshmen for whom no resident space is available at the time of acceptance may live off campus by fulfilling the above conditions (No. 3). However, they shall be expected to move on campus as space becomes available in the Freshman Halls.

DISCIPLINE

"To mould men after the model of the Man-God, and thus form them to serve their fellowmen, their country and their God; this is the ideal and the purpose of the University of Santa Clara."

The University believes that its educational ideals cannot be attained unless her students are well trained in the fundamentals of refinement, considerateness, and restraint. Christian civil society is definitely formed on the principle that we have obligations to our fellowmen, our country and our God. Where so many live so closely together as do the students at Santa Clara, it becomes necessary that certain regulations be set down to accomplish more easily the purpose toward which we are aiming. These regulations are not drawn up with the idea of restricting one or making life difficult; they are given as means of establishing good order, avoiding injustice or inconvenience to others, and insuring a situation conducive to study—the purpose for which students are attending the University of Santa Clara.

Matters pertaining to discipline are under the general direction of the Vice President for Student Affairs.

Students' correspondence is subject to inspection by the President of the University or by some member of the Religious advisory board appointed by him.

The following violations render those involved liable to expulsion:

1. The holding of meetings or forming of Clubs or Societies of any kind without the consent of the President.
2. Gambling, intoxication, the bringing of intoxicating liquors on the University premises or the patronizing of places where liquor is sold.

3. Absence from the University at night without permission.
4. Possession or circulation of any books or writings of an immoral nature or obscene pictures.
5. Habitual obstinancy, insubordination, impertinence or any other character defect, because of which a student may be considered by the University as undesirable.

It is strictly forbidden for any student or group of students to haze any other student or subject him to any personal or physical indignity or treat him in such wise as may reasonably give offense.

After the Summer vacation, Christmas Holidays or other Recesses allowed by the President, students must report back to the Universtiy on the day appointed for Registration and the reopening of classes. Absence at these times may result in fines, deprivation of privileges or, at the discretion of the Faculty exclusion from the University. The minimum sanction for late registration is $2.50 for the first day and $1.00 for each day thereafter. Registration is not completed until a student has attended classes.

The University reserves the right to dismiss at any time a student who fails to give satisfactory evidence of earnestness of purpose in the serious work of college life. Dismissals may be made without specific charges, and, in some cases, perhaps on grounds that seem insufficient to students and parents. The University in these cases holds itself to be the more capable judge of what affects the interests of the institution and the student body.

Any student who wishes to keep his automobile on University premises must register the automobile with the Vice President of the University and must observe regulations established for traffic on the campus.

For additional and more detailed information concerning disciplinary policy consult the University Regulations booklet published annually by the Vice-President's Office.

Eligibility for Extra-Curricular Activities

Except where otherwise specifically provided for by the Faculty, students taking part in public debates, oratorical or dramatic art contests or representing any department of the University in inter-collegiate athletic events, as well as all those who are appointed on the staff of the University publications or as officers of student organizations, or are elected as captains or officers of any society, are subject, at the time of their selection or appointment, to the following eligibility rules: (1) They must have no conditions or failures; (2) They must have attained a weighted average of C in the last mid-term or semester examinations; (3) They must not be under censure. Candidates for student body President must present a weighted average of C+ (1.50).

Any student admitted to the University on a scholarship or as a student worker who fails to obtain a semester average of C+ in any of his subjects forfeits his right to his position or scholarship.

The registration of a student is deemed a recognition on his part and on the part of his parents or guardians of compliance with all the rules and regulations of the University, and acceptance of all conditions laid down in the catalogue.

Withdrawal From the University

When a student is to be withdrawn from the University either temporarily or permanently the Vice President of the University must be informed directly by either a parent or guardian. The student should then report to the Registrar for the Withdawal Form.

ACADEMIC STANDARDS

Regular work for Freshmen is **sixteen hours** per week. For all others it may be from **fifteen** to **eighteen** hours. Candidates for a degree will not be allowed to register for fewer than twelve hours of work.

No Freshman may register for more than **sixteen and one-half** credit hours (except in the College of Engineering, or Science majors in the College of Arts and Sciences) without special permission from the Dean of his college.

In the case of students of longer attendance, the Dean may grant permission to take studies up to **eighteen** credit hours a week, after the standing of the student in each study of the previous semester is examined and found to be B or over. On the other hand, students carrying more than the normal amount of work who fail to maintain a standard of C in all of their courses, may be restricted by the Dean to the normal number of units. Even if, because of the difficulty of making the desirable courses total the exact limit, a student is permitted to carry a study-list slightly greater than the limits here set, or if a student transfers from another college where a greater study-list is permitted or required, the credit toward the degree will be limited strictly according to this rule.

Quality of Work

A student's grade of scholarship is given according to the following schedule:

Above passing:	Below passing:
A, Excellent	F, Failed
B, Good	I, Incomplete
C, Average	W, Withdrawn
D, Inferior	

Incompletes

A student may be reported incomplete if, due to unavoidable absences, some essential portion of his work in the course remains unfinished after the final examination. An incomplete reverts to a failure unless the unfinished work is made up under the direction of the instructor within a period of four weeks after the start of the following semester.

Failures

No grade of E or conditional failure is given in any course. A grade of F at the close of a semester indicates a failure. A failure in a subject means that the student must repeat the work in class the next time it is given if he wishes to receive credit for the subject.

Repetition of Courses

When a student repeats a lower division course at this University he may receive the grade and the grade points earned. When, with the permission of the Dean of the College, he repeats a course at another institution he may receive unit credit if his grade is C or better.

When an upper division student repeats an upper division course, previously failed, he may receive unit credit only. When he repeats an upper division course, previously passed with a grade of D, he may receive additional grade points.

Probation

A student who during any semester fails to maintain a satisfactory average will be put on probation in accordance with the University regulations printed below. A student on probation must prove that he has the ability to earn a C average in a normal academic program during the semester he is on probation. Students who fail to earn a C average during this period will be subject to dismissal from the University, unless, in the opinion of the Committee on Academic Standing, there is good reason to extend the probation for one more semester.

A Freshman who, in his first semester, fails to attain a grade point average of 0.70 or in his second semester fails to maintain a grade point average of 1.00 for the year will be put on probation.

A Sophomore who fails to maintain an average of 0.80 after the first semester of his sophomore year will be placed on probation. If he is already on probation because of unsatisfactory work in his Freshman year he may be placed on second probation only if there is good reason to expect that he can improve his over-all average sufficiently to be eligible for admission into the upper division.

All students to be eligible to advance to the upper division of their college must have a grade point average of 1.00 at the end of their Sophomore year.

Juniors and Seniors who do not maintain a 0.80 average in each semester will be put on probation.

The grade point average is the number of grade points earned divided by the number of unit hours passed.

Probation continues through an entire semester. A student who is on probation will not be permitted to represent the University in any activity.

Exclusion for Poor Scholarship

If in the opinion of the Dean, a student's work is so poor as to justify the action, or if it is reasonably certain that he does not possess the qualifications necessary for success in the particular field or profession to which he aspires, such student may be required to withdraw because of poor scholarship. A Freshman who, in his first semester, fails to attain a grade point average of 0.40 or, in his second semester, fails to attain a grade point average of 0.70 will be required to withdraw from school.

Re-instatement

A student who has been dropped from the University for poor scholarship may not be readmitted, except after the lapse of one semester and through the special action of the Committee on Admissions. If he spends the intervening semester in another institution, he must present a weighted average of "C" for a full schedule in the other institution. His status on readmission will be "probation."

Attendance

The University requires regular attendance of students at scheduled classes, assemblies, the annual retreat and all general University religious and academic functions. Absence and tardiness even when excusable effect class standing.

Any student who, during a semester, has been absent from a class more than twice the number of times that class meets per week is disqualified from that course and will receive a failure in the subject. Attendance records are kept from the first day of class instruction.

If in a student's opinion, there should be a compelling cause for his absence, such as illness, he may present a written petition to the Committee on Scholastic Standing. No appeal will be allowed from the Committee's decision.

Written Examinations

Written examinations are held every six weeks in all subjects and in all departments. They are also held twice a year upon the work done during the preceding semester. After each examination, a report on the progress of the student is prepared by the Registrar's Office and mailed to the parent.

A student guilty of dishonesty in examination will forfeit the credit for the respective course. In special cases and on advisement, the faculty may impose a penalty involving even dismissal from the institution.

General Requirements

In order to be accepted in fulfillment of any requirement for a degree, all work must be completed with grade D or over, and the general average of the work must be of grade C or above but work in the major field, including sophomore pre-requisites, must be completed with a grade of C or over.

Special regulations as to the grades to be maintained by law students will be found under "College of Law, Graduation."

Credit Hour Defined

A semester hour is the standard for computing the amount of a student's work. A semester hour is defined as one lecture or recitation one hour in length per week for one semester. Three hours of laboratory work are equivalent to one recitation hour. Two hours of preparation on the part of the student are required for each hour of lecture or recitation.

Credit Points

A candidate for a degree must gain not only the number of credit hours required in his college, but his work must reach a certain standard of excellence. In addition to the required number of credit hours necessary for graduation, each student must earn an equal number of credit points, or an average mark in all subjects of C or better.

For a grade of A in a given course a student will receive three times as many credit points as there are credit hours in the course; for a grade of B, twice as many credit points; for a grade of C, as many credit points as credit hours; while D gives credit hours but no points. For every failure at the end of the semester, one credit point per credit hour is to be deducted from the total number of credit points that could otherwise be gained. Such lost points may be made up by repeating the course when the conditions stated under "Repetition of Courses" are fulfilled.

For example: A four hour course in which the student receives the grade of A gives 12 credit points; if the grade is B, 8 credit points; if C, 4 credit points; if D, no credit points. If the grade is F, four credit points are deducted.

Thus, in a course where 128 credit hours are required for graduation, the maximum number of credit points that can be secured by a student is 384; the minimum, 128.

Candidates for graduation must attend any course of lectures or any other exercises that have been or may be authorized and equipped by the Faculty, even though such courses receive no value in credits.

No student will be advanced to full junior standing who has less than 64 credit hours and 64 credit points by the end of his sophomore year.

Electing Studies

All students must inform the Dean of the College in writing as to their choice of subjects, and no one may enter upon a course or relinquish one already taken up without his advice and consent, upon penalty of receiving no credit in the first case, and a failure in the subject abandoned, in the second. All such approved changes in study lists must be reported by the student to the Office of the Registrar.

Changing of College or Major

No student, except a freshman on probation, may expect favorable action on a request to change from one college to another unless he is able to present at the time of change an over-all C average This will not be true when a student wishes to change from one major to another within the same college. A student who wishes to request a change must file a petition with the Registrar two weeks before the beginning of the semester. If a minor, a student must present written consent of parent or guardian.

Candidacy for Degree

Every student who wishes to become a candidate for a degree in any College of the University must, at the beginning of his senior year after consulting the Dean of his College, file with the Registrar a written statement of the degree to which he aspires and the work which he proposes to do. He will then be informed whether he may be admitted as a candidate for such degree and whether the work proposed is satisfactory. Any change of purpose must be similarly announced and approved.

Courses, Units

Courses in the University are divided into three groups. The Lower Division, comprising the studies in the freshman and sophomore years; the Upper Division, comprising the studies in the junior and senior years, and leading to the Bachelor's degree; and Graduate Courses, comprising graduate studies, and leading to advanced degrees. (No graduate courses are being given at the present time.)

Courses in the Lower Division are numbered from 1 to 100. Courses in the Upper Division are numbered from 101 to 200. Courses for Graduate students are numbered from 201 up. Under certain conditions Lower Division courses may be taken for Upper Division credit, but in such cases it is expected that a higher standard of work shall be done and the instructor will assign additional work for such students.

Course in American History and Institutions Required for Graduation

All candidates for the bachelor's degree must satisfy the "Requirement of American History and Institution." This requirement may be satisfied in any of the following ways:

1. By passing an examination in American History and Institutions. No unit credit will be given for passing this examination.
2. By completing one of the following: Political Science 20A-20B, Political Science 1-2; Political Science 157; History 171A-171B; or Economics 116.
3. By presenting credit for acceptable courses taken at another collegiate institution.

Transcripts and Credentials

Students wishing Transcripts of Record in order to transfer to another school or for any other purpose should make early and seasonable application for the same. No such statements will be made out during the busy periods of examination and registration. Credentials which are accepted for admission become the property of the University and are kept permanently on file.

Other credentials which are presented for admission by students who are not accepted are also the property of the University, but are not kept beyond a period of two years.

Sessions

The first semester begins in September and ends about the end of January.

The second semester begins in February and ends about the third week of June.

As in most departments of the University new courses are not begun in February, students desiring to matriculate at the beginning of the second semester can be received only on condition that they are prepared up to the point then reached by the class which they desire to enter.

Summer School Courses

The University is not conducting Summer Sessions at the present time. Students planning to attend Summer Sessions at other institutions should, if they wish to receive credit for their courses, secure in advance from the Dean of their College written approval of the College or University they wish to attend and the specific courses they wish to take.

No credit will be allowed for any summer course completed with less than a grade of "C". Moreover, the Dean of the College may require an examination to certify the grade in any summer course.

COLLEGE OF ARTS AND SCIENCES

CURRICULUM

The curriculum of the College of Arts and Sciences extends over a period of four years and comprises courses of study selected with special regard to their cultural value. It assumes that education is concerned with the mental and moral development of the whole man and that specialization in partcular fields should rest upon the foundations thus laid. For this reason the curriculum of the College of Arts and Sciences insists on the advantage of a prescribed training in the humanities, rhetoric, mathematics, natural sciences, social sciences, religion and philosophy. In the final two years concentrated work is offered in the fields of Classical Languages, Spanish, Economics, English, History, Philosophy, Political Science, Biology, Chemistry, and Physics.

ENTRANCE REQUIREMENTS

To qualify for Freshman standing in the College of Arts and Sciences, applicants must be graduates of an accredited high school and must present no less than sixteen units including the following:

English	3 units
Foreign Language (One Language)	2 units
Mathematics (Algebra and Geometry)	2 units*
History	1 unit
Laboratory Science	1 unit *
Optional, advanced course in Foreign Language, Mathematics or Laboratory Science	1 unit

The remaining six units should be in solid college preparatory subjects rather than in the terminal and industrial courses. Additional courses in Foreign Language, Mathematics, Science, English and Social Studies are recommended.

The quality of the grades presented for entrance to the College of Arts and Sciences must be above average. In view of the fact that a C average is required to remain in the College or to receive a degree, it is obvious that something better than a C average should be presented for entrance. Grades of D cannot be accepted in fulfillment of the requirements for entrance to College.

All candidates for a Bachelor's degree are required to present sixteen units of Foreign Language. When two years of Foreign Language (these must be in one Foreign Language) are presented at entrance, four units are allowed, and twelve units (or two years) are required in College. Not more than two Foreign Languages may be presented in fulfillment of the Language requirement.

***Students planning to major in Science** in College should present at entrance to College no less than two Sciences (Chemistry and Physics), and not less than three years of Mathematics (including Intermediate Algebra and Trigonometry).

DEGREES

The College of Arts and Sciences confers the degrees of Bachelor of Arts, and Bachelor of Science.

The Bachelor of Arts degree is conferred on those students who, presenting at entrance four credits in Latin, complete two more years of Latin in college in addition to the other requirements of the major of their choice. Students entering without the prescribed amount of Latin but who have had at least two years of credit in Latin may be permitted to make up the deficiencies during their college course.

The Bachelor of Science degree is conferred on those students who, substituting modern language for Latin, complete the requirements for any of the majors offered.

THE COMBINED DEGREE

The combined degree, by which a student is allowed to substitute for his senior year in college the professional courses of the first year of Law School, is awarded only to students, a) who have done all their undergraduate college work at Santa Clara; b) who have maintained not less than a B average in the Junior year in college; c) who complete with not less than a C average all the professional courses required in the first year of the Santa Clara College of Law and a course in Ethics approved by the Department of Philosophy; and d) who present not less than 128 units of work. Such students will be awarded the Bachelor's degree from the College of Arts and Sciences after completing the first year of law.

The College of Arts and Sciences does not award the combined degree to students who complete part of their undergraduate studies elsewhere, or who undertake their professional studies in Colleges not under the administration of the University.

THE PRE-MEDICAL AND PRE-DENTAL COURSE

Students entering the College of Arts and Sciences with the purpose of later going on to the study of Medicine satisfy all the requirements prescribed by the Council on Education of the American Medical Association by following the major in Biology. The curriculum is so arranged that the student may comply with the requirements for entrance to Medical schools in three years. However, because the number of medical applicants is growing each year, few medical schools now admit students without a college degree. It is therefore recommended that Pre-Medical students spend four years in their preparation and add such cultural courses to their schedule as will better fit them to pass with success through the vast field of experiences which await the physician in the practice of his profession. In this course all requirements for entrance to standard Dental Schools are met.

PRE-LEGAL COURSE

Pre-legal requirements are met by students who follow the regular courses in the College of Arts and Sciences and earn sufficiently high grades. (See College of Law, pre-legal preparation, page 86).

ORIENTATION OF FRESHMEN

The University provides Placement Examinations and orientation lectures for all Freshman Students during three days after Freshman registration in the Fall. In addition the College of Arts and Sciences presents a series of orientation lectures designed to acquaint each new

student with the educational opportunities offered in the College, and to help him to become quite certain about his major interest by the end of the Freshman year. These lectures are given by the Dean, and the Chairmen of Departments offering a major. Freshman students are to attend these lectures. A grade indicating attendance will be recorded on each students permanent record.

DIVISIONS OF THE COLLEGE

Lower Division

The first two years in the College of Arts and Sciences constitute the lower division. During this time, by studying some subjects prescribed by the college and some he elects, the student extends and deepens the knowledge brought from his secondary school, while, at the same time, he prepares to undertake work in a chosen field of concentration.

Specifically, the student is expected to complete the requirement in Foreign Languages (16 units, all but 6 units of which may be done in high school), the requirement in laboratory science (an 8 unit course in one science), the prescribed 14 unit course in English Composition—Rhetoric and Public Speaking, the prescribed courses in Psychology (3 units) and Philosophy (9 units), the course in Western Civilization (6 units), and the prerequisites for the major work on which he will wish to concentrate in the upper division. In the lower division it is expected that the student will complete 68 units of the 128 units required for graduation, and that he will earn a C average. Catholic students must include in their program a one unit course in religion during each semester in college.

Science Majors. Because of the requirements in Science and Mathematics set down for students whose major field is Science, these students cannot be expected to complete all the prescribed General Education courses. They must meet, however, the minimum requirements for foreign language, science, philosophy and religion; but it will be sufficient if, in addition to the Freshman English and Public Speaking courses, they present six additional units in Literature, and at least six units in the History of the United States. Courses in Political Science and Economics are recommended if these can reasonably be included in the curriculum.

General Education. Each student must plan to include the following courses in his curriculum; a) The Survey of English Literature; b) The Principles of Economics; c) The Fundamentals of Political Science; or The Introduction of Sociology. These courses will assist the student to understand the environment in which he must live, and will prepare him for intelligent participation. For definite plans by which to schedule these courses see the suggested curricula drawn up for your assistance by major departments.

Upper Division

The third and fourth years in the College of Arts and Sciences constitute the upper division and are devoted to more advanced study and limited specialization. Admission to the upper division cannot be allowed until the student has selected a major department and has satisfactorily completed the courses and units set down for the lower division.

In the upper division a minimum of 24 units is devoted to advanced study in a particular field called the major. So that General Education courses may be continued, not more than 30 units of upper division work may be presented in the major field. A minimum of 12 units is devoted to

advanced study in a second sequence of courses called the minor. Usually this minor is in Philosophy, but students who choose Philosophy as the major field should be careful to plan some other minor sequence. During the upper division years a 6 unit course in United States History is required. Each department requires certain specific courses which must be completed by students who choose to earn their degree in the department. These requirements will be found under the Description of Courses.

Other Requirements for Graduation

Degrees in the College of Arts and Sciences will be granted upon the following conditions:

1. The total number of units in college courses in the lower and upper divisions must be at least 128. Not more than 8 of these units may be presented in Advanced Military Science.

2. After fulfilling the requirements of the Lower Division, 60 units are required in the upper division, 40 of which must be from listed upper division courses. Where lower division units are taken for upper division credit, both the quantity and quality of such work must conform to upper division standards. Not more than 8 units in Advanced Military Science may be presented in fulfillment of these upper division requirements.

3. Candidates for graduation must complete a major of at least 24 and not more than 30 upper division units in either Classical Languages, Spanish, Philosophy, Economics, English, History, Political Science, Biology, Chemistry or Physics.

4. Candidates for a degree must submit an acceptable thesis on their major or some cognate subject. The thesis shall consist of not fewer than 5000 words and shall be typewritten on National White unruled paper 8½ x 11 inches. The subject must be submitted to the Dean of the College for approval and the thesis itself handed in completed according to the dates stated in the current calendar. The presentation of an acceptable thesis is an absolute prerequisite for admission to final examination. The ultimate decision as to whether the effort merits the certificate or degree rests with the Committee on Theses.

5. Candidates for degrees are required to complete with a creditable score the Graduate Record examination in their major field, as well as the General Aptitude test. Dates for the local administration of these examinations will be announced and candidates for degrees who take the examinations on the assigned dates will be required to pay no fee. Those unable to take the examinations on the announced dates will need to arrange directly with the Educational Testing Service and pay the usual fees.

6. Residence of at least one year immediately preceding graduation **is required for the granting of any degree.**

Graduation Honors

A candidate for an undergraduate or professional degree who has a grade point average of 2.40 graduates **Cum Laude;** one who has a grade point average of 2.65, **Magna Cum Laude;** and one who has a grade point average of 2.85, **Maxima Cum Laude.**

Graduation honors are based on the work of the four years.

The University reserves the right to exclude from graduation honors students who have been subject to disciplinary probation, or who, in the judgment of the Committee on Academic Standing, are lacking in accept-

able qualities of character or good citizenship. The work of transfer students will be interpreted in terms of the grades of this University.

Electives. While fulfilling the specific course requirements set down in the curriculum by each department students may fill out their programs by electing courses of special interest. In electing courses, however, students should see that they have the proper preparatory or prerequisite course. If in a particular case a student desires a course for which he does not have the prerequisite, he should obtain the approval of the department head concerned and of his program adviser.

PLANNED CURRICULA

To assist students in planning an adequate curriculum each department of the College has collaborated in drawing up a pattern of courses including the required lower division courses in general education, a major and minor sequence in upper division courses, and a number of suggested optional or elective courses for students with special interests. These curricula, however, should not be undertaken without first reading the instructions set down by each department under the heading "Departmental Requirements" and without the advice and approval of the head of the department in which the student is registered. Following are planned curricula recommended for majors in Biology, Chemistry, Economics, English, History, Philosophy, Physics, Political Science and Spanish.

A CURRICULUM FOR BIOLOGY MAJORS
(Including Pre-medical and Pre-dental)

Freshman

Fall Semester	Units	Spring Semester	Units
English 1A, Composition and Literature	3	English 1B, Composition and Literature	3
Psychology 1, Introductory Psychology	3	Philosophy 9, Logic	3
Religion 5, The Sacraments	1	Religion 6, The Life of Christ	1
Military Science 1, Basic Course, First Year	1½	Military Science 2, Basic Course, First Year	1½
Language 1, 3, or 5. Choice of: French or German. At least one year of language is required of all.	3	Language 2, 4, or 6. Choice of: French or German. At least one year of language is required of all.	3
Chemistry 1A, Inorganic Chemistry	5	Chemistry 1B, Inorganic Chemistry	5
Mathematics C, Algabra	3	Mathematics D, Trigonometry	3
	19½		19½

Sophomore

Fall Semester	Units	Spring Semester	Units
Philosophy 20, Metaphysics I	3	Philosophy 22, Philosophy of Man	3
Religion 7, The Existence of God	1	Religion 8, Creation	1
Military Science 3, Basic Course, Second Year	1½	Military Science 4, Basic Course, Second Year	1½
Language 3, 5, or further advanced. Unless language requirement of 16 units (high school and college combined) has already been satisfied.	3	Language 4, 6, or further advanced. Unless language requirement of 16 units (high school and college combined) has already been satisfied.	3
Public Speaking 1, Fundamentals of Expression	1	Public Speaking 2, Fundamentals of Expression	1
Chemistry 14, Quantitative Analysis	4	Biology 22, General Zoology	4
Biology 21, General Zoology	4	Biology 32, General Botany or Chemistry 54, Physical Chemistry	4 (3)
	17½		17½ or 16½

Junior

Fall Semester	Units	Spring Semester	Units
Philosophy 109, Theory of Knowledge	3	Philosophy 110, Metaphysics II	3
Religion 107, The Redeemer and Redemption	1	Religion 108, Moral Guidance	1
Military Science 101, Adavnced Course, First Year Optional and by arrangement	(4)	Military Science 102, Advanced Course, First Year Optional and by arrangement	(4)
Chemistry 34A, Organic Chemistry	4	Chemistry 34B or C, Organic Chemistry	4 or 3
Physics 1A, General Physics	4	Physics 1B, General Physics	4
Biology 101, Vertebrate Anatomy	4	Biology 102, Vertebrate Embryology	4
	16 or 20		16 or 20 or 15 or 19

Senior

Fall Semester	Units	Spring Semester	Units
Philosophy 151, Basic Ethics	3	Philosophy 152, Social Ethics	3
Religion 109. Fundamental Apologetics	1	Religion 110, The Sacrament of Matrimony	1
Military Science 103, Advanced Course, Second Year Optional and by arrangement	(4)	Military Science 104, Advanced Course, Second Year Optional and by arrangement	(4)
Biology 107, General Histology or Biology 111, General Physiology	4	Biology 109, Histological Technique (only if Biology 107 has been taken)	2
Biology 104, History of Biology	2	Biology 110, Heredity	2
History 171A. The United States	3	History 171B, The United States	3
English 46A, Survey of English Literature	3	English 46B, Survey of English Literature	3
Elective. For students not taking Military Science	(3)	Elective. For students not taking Military Science	(3)
Economics 1A, Principles of Economics		Economics 1B, Principles of Economics	
Political Science 1, Introduction		Political Science 2, Introduction	
Sociology 1		Sociology 2	
	16 or 19 or 16 or 20		14 or 17 or 14 or 18

A CURRICULUM FOR CHEMISTRY MAJORS

Freshman

Fall Semester	Units	Spring Semester	Units
English 1A, Composition and Literature	3	English 1B, Composition and Literature	3
Psychology 1, Introductory Psychology	3	Philosophy 9, Logic	3
Religion 5, The Sacraments	1	Religion 6, The Life of Christ	1
Military Science 1, Basic Course, First Year	1½	Military Science 2, Basic Course, First Year	1½
Chemistry 1A, Inorganic Chemistry	5	Chemistry 1B, Inorganic Chemistry	5
Mathematics 3A, Analytic Geometry and Calculus	3	Mathematics 3B, Analytic Geometry and Calculus	3
Students unprepared to begin this course will do Mathematics 1. This will require lengthening the course to five years.			
	16½		16½

Sophomore

Fall Semester	Units
Philosophy 20, Metaphysics I	3
Religion 7. The Existence of God	1
Military Science 3, Basic Course Second Year	1½
Language, German 1, 3, or 5. German is recommended by American Chemical Society.	3
Chemistry 10A, Quantitative Analysis	4
Mathematics 4A, Analytic Geometry and Calculus	3
Public Speaking 1, Fundamentals of Expression	1
	16½

Spring Semester	Units
Philosophy 22, Philosophy of Man	3
Religion 8, Creation	1
Military Science 4, Basic Course, Second Year	1½
Language, German 2, 4, 6	3
Chemistry 10B, Quantitative Analysis	4
Mathematics 4B, Analytic Geometry and Calculus	3
Physics 8, General Physics	2
Public Speaking 2, Fundamentals of Expression	1
	18½

Junior

Fall Semester	Units
Philosophy 109, Theory of Knowledge	3
Religion 107, The Redeemer and Redemption	1
Military Science 101, Advanced Course, First Year Optional and by arrangement	(4)
Language, German 3 or 5	3
Chemistry 30A, Organic Chemistry	5
Physics 9, General Physics	5
	17 or 21

Spring Semester	Units
Philosophy 110, Metaphysics II	3
Religion 108, Moral Guidance	1
Military Science 102, Advanced Course, First Year Optional and by arrangement	(4)
Language, German 4 or 6	3
Chemistry 30B, Organic Chemistry	5
Physics 10, General Physics	4
Chemistry Elective	2
	18 or 22

Senior

Fall Semester	Units
Philosophy 151, Basic Ethics	3
Religion 109, Fundamental Apologetics	1
Military Science 103, Advanced Course, Second Year Optional and by arrangement	(4)
Chemistry 150A, Physical Chemistry	3
Chemistry 180, Methods of Research	2
Chemistry 133, Identification of Organic Compounds	3
History 171A, The United States	3
	15 or 19

Spring Semester	Units
Philosophy 152, Social Ethics	3
Religion 110, The Sacrament of Matrimony	1
Military Science 104, Advanced Course, Second Year Optional and by arrangement	(4)
Chemistry 150B, Physical Chemistry	3
Chemistry 150C, Physical Chemistry Laboratory	2
Chemistry 180, Methods of Research	1
Chemistry Electives. (Any elective courses offered)	4
History 171B, The United States	3
	17 or 21

A CURRICULUM FOR ECONOMICS MAJORS

Freshman

Fall Semester	Units
English 1A, Composition and Literature	3
Psychology 1, Introductory Psychology	3
Religion 5, The Sacraments	1
Military Science 1, Basic Course, First Year	1½
Public Speaking 1, Fundamentals of Expression	1
Language 1, 3, or 5. Choice of Latin, Greek, German, French, Spanish, Italian. At least one year of language is required of all.	3
Science. One of the following with its laboratory Biology 23, General Biology Chemistry 2A, General Chemistry Physics 2A, General Physics	4
Mathematics C, Algebra Optional but highly recommended for students capable of doing 18½ units; students taking it may postpone Public Speaking to the next year.	(3)
	16½ or 18½

Spring Semester	Units
English 1B, Composition and Literature	3
Philosophy 9, Logic	3
Religion 6, The Life of Christ	1
Military Science 2, Basic Course, First Year	1½
Public Speaking 2, Fundamentals of Expression	1
Language 2, 4, or 6. Choice of Latin, Greek, German, French, Spanish, Italian. At least one year of language is required of all.	3
Science. One of the following with its laboratory. Biology 24, General Biology Chemistry 2B, General Chemistry Physics 2B, General Physics	4
Mathematics D, Trigonometry Optional but highly recommended for students capable of doing 18½ units; students taking it may postpone Public Speaking to the next year.	(3)
	16½ or 18½

Sophomore

Fall Semester	Units
English 51, Advanced Composition	3
Philosophy 20, Metaphysics I	3
Religion 7, The Existence of God	1
Military Science 3, Basic Course, Second Year	1½
Language 3, 5, or further advanced. Unless language requirement of 16 units (high school and college combined) has already been satisfied.	3
Economics 1A, Principles of Economics Lower division prerequisite for the major.	3
History 2A, Western Civilization. This course may be used as a prerequisite for a minor in addition to Philosophy.	3
	17½

Spring Semester	Units
English 52, Principles of Poetry	3
Philosophy 22, Philosophy of Man	3
Religion 8, Creation	1
Military Science 4, Basic Course, Second Year	1½
Language 4, 6, or further advanced. Unless language requirement of 16 units (high school and college combined) has already been satisfied.	3
Economics 1B, Principles of Economics Lower division prerequisite for the major.	3
History 2B, Western Civilization. The student should continue the course chosen during the Fall semester.	3
	17½

Junior

Fall Semester	Units
Philosophy 109, Theory of Knowledge	3
Religion 107, The Redeemer and Redemption	1
Military Science 101, Advanced Course, First Year Optional and by arrangement	(4)
Economics 100, Principles of Statistical Method	4
Economics 114, Economic Theory	3
Social Studies. (Elect two) Political Science 1, Introduction Sociology 1, Introduction	3

Spring Semester	Units
Philosophy 110, Metaphysics II	3
Religion 108, Moral Guidance	1
Military Science 102, Advanced Course, First Year Optional and by arrangement	(4)
Economics 116, American Economic History	3
Economics 122, Money and Banking	3
Social Studies. (Elect two), Continue the courses begun in the Fall semester)	3

Elective.	3
History 171A. The United States	
English 46A, Survey of English Literature	
Philosophy 41A, History of Philosophy	
Education 101, History of Education	
Education 103, Educational Psychology	
AN UPPER DIVISION COURSE for which the prerequisite has been completed.	
	17 or 21

History 171B, The United States	
English 46B, Survey of English Literature	
Philosophy 41B, History of Philosophy	
Education 102, Principles of Secondary Education	
Education 109, Child Development	
AN UPPER DIVISION COURSE for which the prerequisite has been completed.	
	16 or 20

Senior

Fall Semester	Units
Philosophy 151, Basic Ethics	3
Religion 109, Fundamental Apologetics	1
Military Science 103, Advanced Course, Second Year	(4)
Optional and by arrangement	
Economics (any approved upper division course offered)	3
Economics (any approved upper division course offered)	3
Electives. Elect one of the following	3
(two for those not taking Advanced Military Science)	(3)
History 171A, The United States	
English 46A, Survey of English Literature	
Philosophy 41A, History of Philosophy	
Education 101, History of Education	
Education 103, Educational Psychology	
AN UPPER DIVISION COURSE for which the prerequisite has been completed.	
	16 or 17

Spring Semester	Units
Philosophy 152, Social Ethics	3
Religion 110, The Sacrament of Matrimony	1
Military Science 104, Advanced Course, Second Year	(4)
Optional and by arrangement	
Economics 110, History of Economic Thought	3
Economics (any approved upper division course offered)	3
Electives. Elect one of the following	3
(two for those not taking Advanced Military Science)	(3)
History 171B, The United States	
English 46B, Survey of English Literature	
Philosophy 41B, History of Philosophy	
Education 102, Principles of Secondary Education	
Education 109, Child Development	
AN UPPER DIVISION COURSE for which the prerequisite has been completed.	
	16 or 17

A CURRICULUM FOR ENGLISH MAJORS

Freshman

See Curriculum for Economics Majors

Sophomore

Fall Semester	Units
English 51, Persuasive Writing	3
Philosophy 20, Metaphysics I	3
Religion 7, The Existence of God	1
Military Science 3, Basic Course, Second Year	1½

Spring Semester	Units
English 52, Principles of Poetry	3
Philosophy 22, Philosophy of Man	3
Religion 8, Creation	1
Military Science 4, Basic Course, Second Year	1½

Language 3, 5, or further advanced. Unless language requirement of 16 units (high school and college combined) has already been satisfied.	3
English 46A, Survey of English Literature. Lower division prerequisite for the major.	3
History 2A, Western Civilization.	3
Public Speaking 3, Advanced Public Speaking. Optional	(1)
	17½ or 18½

Languages 4, 6, or further advanced. Unless language requirement of 16 units (high school and college combined) has already been satisfied.	3
English 46B, Survey of English Literature. Lower division prerequisite for the major.	3
History 2B, Western Civilization. The student should continue the subject chosen in the Fall semester.	3
Public Speaking 4, Advanced Public Speaking. Optional	(1)
	17½ or 18½

Junior

Fall Semester	Units
Philosophy 109, Theory of Knowledge	3
Religion 107, The Redeemer and Redemption	1
Military Science 101, Advanced Course, First Year. Optional and by arrangement	(4)
English (any two upper division courses offered for English majors) **Note:** English majors must at some time include in their programs English 103 and 105, and two of the following: English 113, 114, 115, 116	6
History 171A, The United States	3
Elective. Political Science 1, Introduction; Economics 1A, Principles of Economics; Sociology 1, Introduction; Philosophy 41A, History of Philosophy; Education 101, History of Education; Education 103, Educational Psychology; AN UPPER DIVISION COURSE for which the prerequisite has been completed.	3
	16 or 20

Spring Semester	Units
Philosophy 110, Metaphysics II	3
Religion 108, Moral Guidance	1
Military Science 102, Advanced Course, First Year. Optional and by arrangement	(4)
English (any two upper division courses offered for English majors) **Note:** English majors must at some time include in their programs English 103 and 105, and two of the following: English 113, 114, 115, 116.	6
History 171B, The United States	3
Elective. Political Science 2, Introduction; Economics 1B, Principles of Economics; Sociology 2, Introduction; Philosophy 41B, History of Philospohy; Education 102, Principles of Secondary Education; Education 109, Child Development; AN UPPER DIVISION COURSE for which the prerequisite has been completed.	3
	16 or 20

Senior

Fall Semester	Units
Philosophy 151, Basic Ethics	3
Religion 109, Fundamental Apologetics	1
Military Science 103, Advanced Course, Second Year. Optional and by arrangement	(4)
English (any two upper division courses offered for English majors) (See note above regarding required courses)	6

Spring Semester	Units
Philosophy 152, Social Ethics	3
Religion 110, The Sacrament of Matrimony	1
Military Science 104, Advanced Course, Second Year. Optional and by arrangement	(4)
English (any two upper division courses offered for English majors) (See note above regarding required courses)	6

Elective. Elect one (two for those not taking Advanced Military Science) of the following:	3 (3)
Political Science 1, Introduction	
Economics 1A, Principles of Economics	
Sociology 1, Introduction	
Philosophy 41A, History of Philosophy	
Education 101, History of Education	
Education 103, Educational Psychology	
AN UPPER DIVISION COURSE for which the prerequisite has been completed.	
	16 or 17

Elective. Elect one (two for those not taking Advanced Military Science) of the following:	3 (3)
Political Science 2, Introduction	
Economics 1B, Principles of Economics	
Sociology 2, Introduction	
Philosophy 41B, History of Philosophy	
Education 102, Principles of Secondary Education	
Education 109, Child Development	
AN UPPER DIVISION COURSE for which the prerequisite has been completed.	
	16 or 17

A CURRICULUM FOR HISTORY MAJORS

Freshman

See Curriculum for Economics Majors

Sophomore

Fall Semester	Units
English 51, Persuasive Writing	3
Philosophy 20, Metaphysics I	3
Religion 7, The Existence of God	1
Military Science 3, Basic Course, Second Year	1½
Language 3, 5, or further advanced, unless language requirement of 16 units (high school and college combined) has already been satisfied.	3
History: History 2A, Western Civilization	3
Social Studies. (Elect one)	3
Economics 1A, Principles of Economics	
Sociology 1, Introduction	
Political Science 1, Introduction	
Public Speaking 3, Advanced Public Speaking	(1)
Optional	
	17½ or 18½

Spring Semester	Units
English 52, Principles of Poetry	3
Philosophy 22, Philosophy of Man	3
Religion 8, Creation	1
Military Science 4, Basic Course, Second Year	1½
Language 4, 6, or further advanced, unless language requirement of 16 units (high school and college combined) has already been satisfied.	3
History: History 2B, Western Civilization	3
Students should continue the course chosen last semester.	
Social Studies. (Continue the course begun in the Fall semester)	3
Economics 1B, Principles of Economics	
Sociology 2, Introduction	
Political Science 2, Introduction	
Public Speaking 4, Advanced Public Speaking	(1)
Optional	
	17½ or 18½

Junior

Fall Semester	Units
Philosophy 109, Theory of Knowledge	3
Religion 107, The Redeemer and Redemption	1
Military Science 101, Advanced Course, First Year	(4)
Optional and by arrangement	
History 101, Historical Methods	3

Spring Semester	Units
Philosophy 110, Metaphysics II	3
Religion 108, Moral Guidance	1
Military Science 102, Advanced Course, First Year	(4)
Optional and by arrangement	
History 135, Russia or History 191, The Far East	3

History 171A, The United States	3
Social Studies. (Elect one)	3
Economics 1A, Principles of Economics	
Sociology 1, Introduction	
Political Science 1, Introduction	
AN UPPER DIVISION COURSE for which the prerequisite has been completed.	
English 46A, Survey of English Literature	3
	16 or 20

History 171B, The United States	3
Social Studies (Continue the course begun in the Fall semester)	3
Economics 1B, Principles of	
Sociology 2, Introduction	
Political Science 2, Introduction	
AN UPPER DIVISION COURSE for which the prerequisite has been completed.	
English 46B, Survey of English Literature	3
	16 or 20

Senior

Fall Semester	Units
Philosophy 151, Basic Ethics	3
Religion 109, Fundamental Apologetics	1
Military Science 103, Advanced Course, Second Year	(4)
Optional and by arrangement	
History (any two upper division courses offered)	6
Electives. Elect one of the following (two for those not taking Advanced Military Science).	3 (3)
Economics 1A, Principles of Economics	
Sociology 1, Introduction	
Political Science 1, Introduction	
Philosophy 41A, History of Philosophy	
Education 101. History of Education	
Education 103, Educational Psychology	
AN UPPER DIVISION COURSE for which the prerequisite has been completed.	
	16 or 17

Spring Semester	Units
Philosophy 152, Social Ethics	3
Religion 110, The Sacrament of Matrimony	1
Military Science 104, Advanced Course, Second Year	(4)
Optional and by arrangement	
History (any two upper division courses offered)	6
Electives. Elect one of the following (two for those not taking Advanced Military Science).	3 (3)
Economics 1B, Principles of Economics	
Sociology 2, Introduction	
Political Science 2, Introduction	
Philosophy 41B, History of Philosophy	
Education 102, Principles of Secondary Education	
Education 109, Child Development	
AN UPPER DIVISION COURSE for which the prerequisite has been completed.	
	16 or 17

A CURRICULUM FOR PHILOSOPHY MAJORS

Freshman

See Curriculum for Economics Majors

Sophomore

Fall Semester	Units
English 51, Persausive Writing	3
Philosophy 20, Metaphysics I	3
Religion 7, The Existence of God	1
Military Science 3, Basic Course, Second Year	1½
Language 3, 5, or further advanced, unless language requirement of 16 units (high school and college combined) has already been satisfied.	3
Philosophy 41A, History of Philosophy	3

Spring Semester	Units
English 52, Principles of Poetry	3
Philosophy 22, Philosophy of Man	3
Religion 8, Creation	1
Military Science 4, Basic Course, Second Year	1½
Language 4, 6, or further advanced, unless language requirement of 16 units (high school and college combined) has already been satisfied.	3
Philosophy 41B, History of Philosophy	3

Lower division prerequisite for the major.	
Lower division prerequisite for the minor. Philosophy majors must so arrange their course as to obtain a minor in some other subject. Choice of:	3
History: History 2A, Western Civilization	
English 46A, Survey of English Literature	
Political Science 1, Introduction Economics 1A, Principles of Economics	
(Because of the required course, History 171A-B a history major will fit into this program easily)	
*Public Speaking 3, Advanced Public Speaking	(1)
*Optional	
	17½ or 18½

Lower division prerequisite for the major.	
Lower division prerequisite for the minor. Philosophy majors must so arrange their course as to obtain a minor in some other subject. They should continue the subject chosen last semester:	3
History: History 2B, Western Civilization	
English 46B Survey of English Literature	
Political Science 2, Introduction Economics 1B, Principles of Economics	
*Public Speaking 4, Advanced Public Speaking	(1)
*Optional	
	17½ or 18½

Junior

Fall Semester	Units
Philosophy 109, Theory of Knowledge	3
Philosophy, upper division curriculum for the major.	3
One of the following, whichever happens to be offered the current semester	
Philosophy 161, Aesthetics and Philosophy of Art	
Philosophy 171, Plato	
Philosophy 172, Aristotle	
Philosophy 173, The Thomistic Synthesis	
Philosophy 174, Seventeenth Century Philosophy	
Philosophy 175, Kant and the German Idealists	
Philosophy 176, Contemporary European Philosophy	
Philosophy 177, American Philosophy	
Religion 107, The Redeemer and Redemption	1
History 171A, The United States	3
Military Science 101, Advanced Course, First Year	(4)
Optional and by arrangement	
Social Science or Literature:	3
Two of the following must be taken:	3
History: History 2A, Western Civilization	
Political Science 1, Introduction Economics 1A, Principles of Economics	
Sociology 1, Introduction to Sociology	
English 46A, Survey of English Literature	
Or some upper division course in pursuance of the minor the student chose in sophomore year.	
	16 or (20)

Spring Semester	Units
Philosophy 110, Metaphysics II	3
Philosophy, upper division curriculum for the major.	3
One of the eight courses listed above, Philosophy 161 to 177.	
Religion 108, Moral Guidance	1
History 171B, The United States	3
Military Science 102, Advanced Course, First Year	(4)
Optional and by arrangement	
Social Science or Literature:	3
Two of the following must be taken:	3
History: History 2B, Western Civilization	(3)
Political Science 2, Introduction Economics 1B, Principles of Economics	
Sociology 2, Introduction of Sociology	
English 46B, Survey of English Literature	
Or some upper division course in pursuance of the minor the student chose in sophomore year. These courses should continue the program of the first semester without interruption.	
	16 or (20)

Senior

Fall Semester	Units
Philosophy 151, Basic Ethics	3
Philosophy, upper division curriculum for the major.	3
One of the eight courses listed above, Philosophy 161 to 177.	
Religion 109, Fundamental Apologetics	1
Military Science 103, Advanced Course, Second Year	(4)
Optional and by arrangement	
Social Science or Literature:	3
Two of the following courses must be taken, whether the student is taking Advanced Military Science or not:	3
History: History 2A, Western Civilization	
Political Science 1. Introduction	
Economics 1A, Principles of Economics	
Sociology 1, Introduction to Sociology	
English 46A, Survey of English Literature	
Or some upper division course in pursuance of the minor the student chose in sophomore year.	
Elective. Students not taking Advanced Military Science may choose any course for which they have the prerequisites. It should be chosen from the list above, if any of them have not yet been chosen.	(3)
	16 or 17

Spring Semester	Units
Philosophy 152, Social Ethics	3
Philosophy, upper division curriculum for the major.	3
One of the eight courses listed above, Philosophy 161 to 177.	
Religion 110. The Sacrament of Matrimony	1
Military Science 104, Advanced Course, Second Year	(4)
Optional and by arrangement	
Social Science or Literature:	3
Two of the following courses must be taken, whether the student is taking Advanced Military Science or not:	3
History: History 2B, Western Civilization	
Political Science 2, Introduction	
Economics 1B, Principles of Economics	
Sociology 2, Introduction to Sociology	
English 46B, Survey of English Literature	
Or some upper division course in pursuance of the minor the student chose in sophomore year.	
Elective. As above.	(3)
	16 or 17

A CURRICULUM FOR PHYSICS MAJORS

Freshman

Fall Semester	Units
English 1A, Composition and Literature	3
Religion 5, The Sacraments	1
Psychology 1, Introductory Psychology	3
Mathematics 3A, Analytic Geometry and Calculus	4
Military Science 1, Basic Course First Year	1½
Public Speaking 1, Fundamentals of Expression	1
Physics 1A, General Physics	4
	17½

Spring Semester	Units
English 1B, Composition and Literature	3
Religion 6, The Life of Christ	1
Philosophy 9, Logic	3
Mathematics 3B, Analytic Geometry and Calculus	3
Military Science 2, Basic Course, First Year	1½
Public Speaking 2, Fundamentals of Expression	1
Physics 1B, General Physics	4
	16½

Sophomore

Fall Semester	Units
Philosophy 20, Metaphysics	3
Religion 7, Existence of God	1
Language 1, 3, or 5, German	3
Military Science 3, Basic Course Second Year	1½

Spring Semester	Units
Philosophy 22, Philosophy of Man	3
Religion 8, Creation	1
Language 1, 3, or 5, German	3
Military Science 4, Basic Course Second Year	1½

Mathematics 4A, Analytic Geometry and Calculus	3	Mathematics 4B, Analytic Geometry and Calculus	3
Chemistry 1A, General Chemistry	5	Chemistry 1B, General Chemistry	5
Physics 20A, Optics	2	Physics 20B, Optics	2
	18½		18½

Junior

Fall Semester	Units	Spring Semester	Units
Philosophy 109, Theory of Knowledge	3	Philosophy 110, Metaphysics II	3
Religion 107, The Redeemer	1	Religion 108, Moral Guidance	1
Language 3 or 5, German	3	Language 3 or 5, German	3
Mathematics 121, Differential equations	3	Mathematics 122, Advanced Calculus	3
Physics 101A, Electricity and Magnetism	4	Physics 101B, Electricity and Magnetism	4
Physics 110A, Analytical Mechanics	3	Physics 110B, Analytical Mechanics	3
	17		17

Senior

Fall Semester	Units	Spring Semester	Units
Philosophy 151. Basic Ethics	3	Philosophy 152, Social Ethics	3
Religion 109, Fundamental Apologetics	1	Religion 110, The Sacrament of Matrimony	1
History 171A, The United States	3	History 171B, The United States	3
Physics 30, Thermodynamics	3	Physics 120B, Modern Physics	4
Physics 120A, Modern Physics	4	Physics 130B, Introduction to Theoretical Physics	(3)
Physics 130A, Introduction to Theoretical Physics	(3)	Physics 140, Methods of Research	1
Physics 140, Methods of Research	1	Elective	3
	15 or (18)		15 or (18)

A CURRICULUM FOR POLITICAL SCIENCE MAJORS

Freshman

See Curriculum for Economics Majors

Sophomore

Fall Semester	Units	Spring Semester	Units
English 51, Persuasive Writing	3	English 52, Principles of Poetry	3
Philosophy 20, Metaphysics I	3	Philosophy 22, Philosophy of Man	3
Religion 7, The Existence of God	1	Religion 8, Creation	1
Military Science 3, Basic Course, Second Year	1½	Military Science 4, Basic Course, Second Year	1½
Language 3, 5, or further advanced, unless language requirement of 16 units (high school and college combined) has already been satisfied.	3	Language 4, 6, or further advanced, unless language requirement of 16 units (high school and college combined) has already been satisfied.	3
Political Science 1, Introduction	3	Political Science 2, Introduction	3
History 2A, Western Civilization	3	History 2B, Western Civilization	3
Public Speaking 3, Advanced Public Speaking Optional	(1)	Public Speaking 4, Advanced Public Speaking Optional	(1)
	17½ or 18½		17½ or 18½

Junior

Fall Semester	Units
Philosophy 109, Theory of Knowledge	3
Religion 107, The Redeemer and Redemption	1
Military Science 101, Advanced Course, First Year	(4)
Optional and by arrangement	
Political Science (any upper division course offered)	3
Political Science (any upper division course offered)	3
Economcs 1A, Principles of Economics	3
Elective.	3
Sociology 1, Introduction	
English 46A, Survey of English Literature	
AN UPPER DIVISION COURSE for which the prerequisite has been completed.	
	16 or 20

Spring Semester	Units
Philosophy 110, Metaphysics II	3
Religion 108, Moral Guidance	1
Military Science 102, Advanced Course, First Year	(4)
Optional and by arrangement	
Political Science (any upper division course offered)	3
Political Science (any upper division course offered)	3
Economics 1B, Principles of Economics	3
Elective.	3
Sociology 2, Introduction	
English 46B, Survey of English Literature	
AN UPPER DIVISION COURSE for which the prerequisite has been completed.	
	16 or 20

Senior

Fall Semester	Units
Philosophy 151, Basic Ethics	3
Religion 109, Fundamental Apologetics	1
Military Science 103, Advanced Course, Second Year	(4)
Optional and by arrangement	
Political Science 118A, History of Political Doctrines	3
Political Science (any upper division course offered)	3
History 171A, The United States	3
Elective. (For those not taking Advanced Military Science)	(3)
Sociology 1, Introduction	
English 46A, Survey of English Literature	
Philosophy 41A, History of Philosophy	
AN UPPER DIVISION COURSE for which the prerequisite has been completed.	
	16 or 17

Spring Semester	Units
Philosophy 152, Social Ethics	3
Religion 110, The Sacrament of Matrimony	1
Military Science 104, Advanced Course, Second Year	(4)
Optional and by arrangement	
Political Science 118B, History of Political Doctrines	3
Political Science (any upper division course offered)	3
History 171B, The United States	3
Elective. (For those not taking Advanced Military Science)	(3)
Sociology 2, Introduction	
English 46B, Survey of English Literature	
Philosophy 41B, History of Philospohy	
AN UPPER DIVISION COURSE for which the prerequisite has been completed.	
	16 or 17

A CURRICULUM FOR SPANISH MAJORS

Freshman

See Curriculum for Economics Majors

Sophomore

Fall Semester	Units	Spring Semester	Units
English 51, Persuasive Writing	3	English 52, Principles of Poetry	3
Philosophy 20, Metaphysics I	3	Philosophy 22, Philosophy of Man	3
Religion 7, The Existence of God	1	Religion 8, Creation	1
Military Science 3, Basic Course, Second Year	1½	Military Science 4, Basic Course, Second Year	1½
Spanish 3, 5, or 101	3	Spanish 4, 6 or 102	3
History 2A, Western Civilization	3	History 2B, Western Civilization	3
Elective. (Lower division prerequisite for a minor in addition to Philosophy).	3	Elective. Continuation of subject last semester from above list.	3
Modern or Classical Language		Elective	
Political Science 1, Introduction		Continue courses begun in Fall semester.	
Economics 1, Principles of Economics			
English 46A, Survey of English Literature			
Sociology 1, Introduction			
	17½		17½

Junior

Fall Semester	Units	Spring Semester	Units
Philosophy 109, Theory of Knowledge	3	Philosophy 110, Metaphysics II	3
Religion 107, The Redeemer and Redemption	1	Religion 108, The Redeemer and Redemption	1
Military Science 101, Advanced Course, First Year	(4)	Military Science 102, Advanced Course, First Year	(4)
Optional and by arrangement		Optional and by arrangement	
Spanish 103, Masterpieces of Spanish Literature	3	Spanish 104, Masterpieces of Modern Spanish Literature	3
Spanish 105, Advanced Composition and Conversation, or 101, Survey of Spanish Literature	3	Spanish 106, Commercial Spanish, or 102, Survey of Spanish Literature	3
History 171A, The United States	3	History 171B, The United States	3
Elective.	3	Elective.	3
Modern or Classical Language		Modern or Classical Language	
Political Science 1, Introduction		Political Science 2, Introduction	
English 46A, Survey of English Literature		English 46B, Survey of English Literature	
Economics 1A, Principles of Economics		Economics 1B, Principles of Economics	
Sociology 1, Introduction		Sociology 2, Introduction	
Education 101, History of Education		Education 102, Principles of Secondary Education	
Education 103, Educational Psychology		Education 109, Child Development	
AN UPPER DIVISION COURSE for which the prerequisite has been completed.		AN UPPER DIVISION COURSE for which the prerequisite has been completed.	
	16 or 20		16 or 20

Senior

Fall Semester	Units	Spring Semester	Units
Philosophy 151, Basic Ethics	3	Philosophy 152, Social Ethics	3
Religion 109, Fundamental Apologetics	1	Religion 110, The Sacrament of Matrimony	1
Military Science 103, Advanced Course, Second Year	(4)	Military Science 104, Advanced Course, Second Year	(4)
Optional and by arrangement		Optional and by arrangement	

Spanish 107, Cervantes	3
Spanish 101, Survey of Spanish Literature, or 105, Advanced Composition and Conversation	3
History 161A, History of the Americas	3
Elective. (For those not taking Advanced Military Science)	(3)
Modern or Classical Language	
Political Science 1, Introduction	
English 46A, Survey of English Literature	
Economics 1A, Principles of Economics	
Sociology 1, Introduction	
Education 101, History of Education	
Education 103, Educational Psychology	
AN UPPER DIVISION COURSE for which the prerequisite has been completed.	
	16 or 17

Spanish 108, Contemporary Spanish Drama	3
Spanish 102, Survey of Spanish Literature, or 106, Commercial Spanish	3
History 161B, History of the Americas	3
Elective. (For those not taking Advanced Military Science)	(3)
Modern or Classical Language	
Political Science 2, Introduction	
English 46B, Survey of English Literature	
Economics 1B, Principles of Economics	
Sociology 2, Introduction	
Education 102, Principles of Secondary Education	
Education 109, Child Development	
AN UPPER DIVISION COURSE for which the prerequisite has been completed .	
	16 or 17

LOS GATOS CAMPUS

Sacred Heart Novitiate located above Los Gatos is a branch campus of the University of Santa Clara. Work on this campus is devoted exclusively to preparation for the priesthood of members of the Society of Jesus. Studies pursued here are the first of twelve years of study. The curriculum at Los Gatos comprises humanistic and classical studies.

Aims

The Priesthood demands men well formed in asceticism, deeply trained in scientific, philosophical, and theological studies, and in genuine culture. To attain these ends the Los Gatos campus follows a four year program. The first two years, technically known as the Novitiate, are taken up mainly with religious formation. However, during this period the Novices take regular college courses in Latin, Greek, and Public Speaking.

The last two years at Los Gatos are called the Juniorate. Here the scholastics devote themselves to studies in the Liberal Arts. The curriculum prescribes Latin, English, Greek, History, French, Public Speaking, Education, and Mathematics.

Entrance Requirements

Minimum requirements demand four years with grades above average of academic high school work including four years of Latin.

COLLEGE OF BUSINESS ADMINISTRATION

COLLEGE OF BUSINESS ADMINISTRATION—ADVISORY BOARD

L. Hunt
E. D. Maloney
P. G. Pasetta
S. L. Schwartz
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GENERAL STATEMENT

The College of Business Administration correlates the general educational objectives of the University with preparation in meeting the general and specific problems of industry.

DEGREE CURRICULA

The program leading to a degree of Bachelor of Science in Commerce, consists of a total of 128 semester credit hours.

During the first two years of the course, extreme specialization is not the aim of the College. Rather, the student is trained in the fundamentals of English, Mathematics, Economics, Accounting, Public Speaking, and Philosophy so that he will be well prepared to analyze and study the technical and special problems of business.

During the Junior and Senior years, the course is arranged so that every student will include courses in the major functions found in typical business firms. All students must take courses in Finance, Marketing, Production, Administrative Practices, Accounting, Business Policy, Business Law, and Ethics.

Special and advanced work is given in Economics, Sales, Industrial Management, Finance, Accounting, Advertising, Labor Relations, Statistics, Transportation, Retailing and Personnel Management so that students may specialize in some specific area. As an example, majors in Accounting may take the required work to prepare for the Certified Public Accounting Examination.

The courses in ethics, philosophy and science provide the student with the broader fundamental principles necessary for dealing with the industrial system in its social relationships.

HISTORY

The Board of Trustees established the College of Business Administration as an integral part of the University of Santa Clara in 1926. The four year curriculum was approved in 1927.

OBJECTIVE

The primary objective of the College of Business Administration is to supply professional training for those who are aiming at responsible positions in corporations, in their own business, in professional organizations serving business, or in state and federal government agencies.

METHOD OF INSTRUCTION

The method of instruction used in the College is one in which the student learns to do through doing. Cases, problems, and discussions supplement in large measure the lecture method which many other schools use.

The students must serve as active participants in class discussions. They must learn how to analyze business conditions and problems in a great variety of business situations. In so doing, they develop the ability and aptitude to evaluate a business problem and to decide on what course of action to follow.

ENTRANCE REQUIREMENTS

To qualify for Freshman standing in the College of Business Administration, applicants must be graduates of an accredited high school and must present no less than sixteen units including the following:

English	3 units
Foreign Language (One Language)	2 units
Mathematics (Algebra and Geometry)	2 units
History	1 unit
Laboratory Science	1 unit
Optional, advanced course in Foreign Language, Mathematics, or Laboratory Science	1 unit

The remaining six units should be in solid college preparatory subjects rather than in the terminal and industrial courses. Additional courses in Foreign Language, Mathematics, Science, English and Social Studies are recommended.

The quality of the grades presented for entrance to the College of Business Administration must be above average. In view of the fact that a C average is required to remain in the College or to receive a degree, it is obvious that something better than a C average should be presented for entrance.

ORGANIZATION OF THE COLLEGE

The curriculum of the College of Business Administration extends over four years and leads to the degree of Bachelor of Science in Commerce.

The work in this college is divided into that of Lower Division and Upper Division.

LOWER DIVISION

The first two years (freshman and sophomore) of college work are known as the lower division. The work of the lower division supplements that of the secondary schools in establishing a basis for a liberal education, and at the same time includes work introductory to the professional courses required at the University.

Certain courses taken in the high school are better adapted to prepare the student to undertake these lower division requirements. It is desirable that the student should so arrange his high school program as to complete required work in the field of foreign language, and that he should

do sufficient work in mathematics and the natural sciences to enable him to undertake with success the courses required in College. In no case, however, does the satisfaction of lower division requirements in the high school reduce the amount of work required in the lower division or for the degree. The lower division work presupposes the prescribed entrance requirements, the successful completion of Subject "A" and the specified requirements in the respective courses.

Required Lower Division Courses

It should be noted that the recommended program for the first two years is the same for all students.

Freshman Year

6 units of Mathematics
8 units of a Laboratory Science (Physics, Chemistry or Biology)
6 units of English
2 units of Introduction to Business
3 units of Military Science
3 units of Introductory Psychology
3 units of Logic
2 units of Political Science

Sophomore Year

6 units of Principles of Economics
8 units of Principles of Accounting
4 units of Statistics
5 units of Business Report Writing and Public Speaking
3 units of Military Science
3 units of Philosophy of Man
3 units of Philosophy of Nature

SUGGESTED CURRICULA

Freshman Year

Fall Semester	Units	Spring Semester	Units
Engl. 1A (Engl. Comp. & Lit.)	3	Engl. 1B (Engl. Comp. & Lit.)	3
Psych. 1 (Intro. Psychology)	3	Phil. 9 (Logic)	3
Science (Chemistry, Physics or Biology)	4	Science (Chemistry, Physics or Biology)	4
Math. 15 (Algebra)	3	B.A. 16 (Math. of Finance)	3
B.A. 11 (Intro. to Business)	2	Pol. Sci. 20A-B (American Inst.)	2
Mil. Sci. 1 (Basic Course)	1½	Mil. Sci. 2 (Basic Course)	1½
Relig. 5 (The Sacraments)	1	Relig. 6 (The Life of Christ)	1
	17½		17½

Sophomore Year

Fall Semester	Units	Spring Semester	Units
Phil. 20 (Metaphysics I)	3	Phil. 22 (Phil. of Man)	3
Engl. 51 (Adv. Composition)	(3)	Engl. 51 (Adv. Composition)	(3)
or B.A. 40 (Statistics)	(4)	or B.A. 40 (Statistics)	(4)
Econ. 1A (Prin. of Econ.)	3	Econ. 1B (Prin. of Econ.)	3
B.A. 10A (Accounting)	4	B.A. 10B (Accounting)	4
Public Speaking 1	1	Public Speaking 2	1
Mil. Sci. 3 (Basic Course)	1½	Mil. Sci. 4 (Basic Course)	1½
Relig. 7 (The Existence and Essence of God)	1	Relig. 8 (Creation)	1
	16½ or 17½		16½ or 17½

UPPER DIVISION

Objectives

The primary objective of the upper division is to provide fundamental academic and professional training which will qualify graduates for the responsibilities of business. In other words, the College of Business Administration has as its primary goal the training of professional business men.

The secondary objective is to offer sufficient work in Accounting, Industrial Management, Sales and Marketing, Finance and Economics so that students who desire to specialize may secure a sound foundation in these areas.

Requirements

Each student is required on entering the upper division to fulfill the following minimum requirements for graduation:

1. At least 60 units of upper division subjects must be completed after fulfilling the requirements of the lower division. Where lower division units are taken for upper division credit, both the quantity and quality of such work must conform to upper division standards.
2. Residence of at least one year immediately preceding graduation is required for the granting of any degree.
3. Electives. Courses not taken as prescribed courses and not included in the students' major and minor sequences may be chosen as free electives to complete the 128 units required for graduation.
4. A minimum of 48 units in Business Administration and Economics must be completed during the Junior and Senior years by all students with the exception of those taking Advance Military Science. Students in Advanced Military Science will be required to complete a minimum of 42 units in Business Administration and Economics.

REQUIRED UPPER DIVISION COURSES

The course is arranged so that every student must include during his Junior and Senior years courses in the major functions found in typical business firms.

Students are required to take the following courses:

Junior Year Courses

a. Students who wish to place major emphasis on the areas of Advertising, Marketing, Sales, Economics, Finance, Statistics, or Industrial Management will take the required courses listed below:

2 units of Religion
3 units of Finance
6 units of Marketing
3 units of Industrial Organization and Management
3 units of Personnel Management
6 units of Philosophy
9 units of Business Administration or Economics electives

—
32 units

b. Accounting majors will be required to take the following courses:

2 units of Religion
3 units of Marketing
3 units of Industrial Organization and Management
6 units of Intermediate Accounting
3 units of Cost Accounting
3 units of Analysis of Financial Statements
6 units of Philosophy
6 units of Business Administration or Economics electives

32 units

Senior Year Courses

All students will be required to take during their senior year the following courses:

2 units of Religion
6 units of Business Law
6 units of Ethics
3 units of Business Policies
15 units of Business Administration or Economics electives

32 units

The above required courses give the students the training necessary in preparing them to have a broad business outlook. With courses in Marketing, Industrial Management, Corporation Finance, Economics, and Accounting in their required program, the students are prepared to grasp and cope with the complicated problems of management. They are not limited in their analyses of these varied problems to any one phase of the operations of a company, but are equipped to consider all aspects.

GRADUATION

Graduation from this college requires the completion of 128 semester units of college work, of which 64 units constitute the amount required in the lower division and at least 60 of which are required in the upper division. To qualify for a degree a student must maintain at least a "C" average in the required Upper Division courses in Law and Economics.

Graduation Honors. A candidate for an undergraduate or professional degree who has a grade point average of 2.40 graduates **Cum Laude;** one who has a grade point average of 2.65, **Magna Cum Laude;** and one who has a grade point average of 2.85, **Maxima Cum Laude.** Graduation honors are based on the work of the four years.

The University reserves the right to exclude from graduation honors students who have been subject to disciplinary probation, or who, in the judgment of the Committee on Honors, are lacking in acceptable qualities of character or good citizenship. The work of transfer students will be interpreted in terms of the grades of this University.

Business Lectures

Throughout the year a series of lectures is given by business and public men of prominence on various problems of interest to the student body. These lectures bring the students into personal contact with representative business men and also enable them to become familiar with practical business problems.

Inspection Trips

The close connection of the University with the business and industrial establishments of the San Francisco metropolitan district enables the faculty to arrange various inspection trips to such industries as may be of interest. In this way students are given a practical insight into the business organization and workings of representative industries.

SUGGESTED PROGRAM FOR ALL STUDENTS EXCEPT ACCOUNTING MAJORS

Junior Year

Fall Semester	Units	Spring Semester	Units
B.A. 121 (Finance)	3	B.A. 182 (Marketing)	3
B.A. 181 (Marketing)	3	B.A. 160 (Indus. Organ. & Mgt.)	3
B.A. 166 (Personnel Mgt.)	3	Phil. 110 (Metaphysics II)	3
Phil. 109 (Theory of Knowledge)	3	B.A. or Economics electives	6
B.A. or Economics elective	3	Relig. 108 (Moral Guidance)	1
Relig. 107 (God, The Redeemer, and Redemption)	1		
	16		16

Senior Year

Fall Semester	Units	Spring Semester	Units
Phil. 151 (Basic Ethics)	3	Phil. 152 (Social Ethics)	3
Relig. 109 (Fundamental Apologetics)	1	Relig. 110 (The Sacrament of Matrimony	1
B.A. 155A (Business Law)	3	B.A. 155B (Business Law)	3
B.A. 159 (Economics of Enterprise)	3	B.A. 162A (Business Policies)	3
B.A. or Economics electives	6	B.A. or Economics electives	6
	16		16

SUGGESTED PROGRAM FOR ACCOUNTING MAJORS

Junior Year

Fall Semester	Units	Spring Semester	Units
Phil. 109 (Theory of Knowledge)	3	Phil. 110 (Metaphysics II)	3
Relig. 107 (God, The Redeemer and Redemption)	1	Relig. 108 (Moral Guidance)	1
B.A. 130 (Inter. Accounting)	3	B.A. 131 (Inter. Accounting)	3
B.A. 133 (Cost Accounting)	3	B.A. 135 (Anal. of Financial Statements)	3
B.A. 181 (Marketing)	3	B.A. 160 (Ind. Organization and Mgt.)	3
B.A. or Economics elective	3	B.A. or Economics elective	3
	16		16

Senior Year

Fall Semester	Units	Spring Semester	Units
Phil. 151 (Basic Ethics)	3	Phil. 152 (Social Ethics)	3
Relig. 109 (Foundamental Apologetics)	1	Relig. 110 (The Sacrament of Matrimony)	1
B.A. 137 (Auditing)	3	B.A. 138 (Income Taxation)	3
B.A. 155A (Business Law)	3	B.A. 155B (Business Law)	3
B.A. 159 (Economics of Enterprise)	3	B.A. 162A (Business Policies)	3
B.A. or Economics elective	3	B.A. or Economics elective	3
	16		16

EVENING DIVISION

The College of Business Administration's Evening Division offers courses in the fields of Accountancy, Business Law, Sales, Industrial Management, Finance, Economics, and Ethics.

Subsequent demand for specialized work will be the criterion for continuation and elaboration of the program.

High School graduates presenting the necessary units of admission to the University of Santa Clara will be admitted to the classes and students who do not meet the entrance requirements will be admitted on special examination or on their record of experience.

While college credit is granted for the majority of the classes offered, any student, to qualify for a degree, must complete all the entrance, residence and academic requirements as set down for the Day Division.

COLLEGE OF ENGINEERING

COLLEGE OF ENGINEERING — ADVISORY BOARD

Donald I. Cone

Warren H. McBryde

Glenn B. Woodruff

INTRODUCTION

COLLEGE OF ENGINEERING

The College of Engineering in the University of Santa Clara was founded to give young men, ambitious to follow the profession of engineering, an opportunity to prepare for their profession in an environment and atmosphere conducive to deep, persevering study and to cultural and moral development.

To meet this demand, the Faculty of the University added sound and thorough courses in Civil, Electrical and Mechanical Engineering. As in all other departments of the University, the students are under the moral guidance of the Jesuit Fathers. The technical work of these departments is in the hands of experienced and practical engineers who devote their whole time and attention to the success of their work. As is traditional at Santa Clara, students in Engineering are given individual care, assistance, advice and encouragement. The work exacted is of the highest type; nevertheless, owing to this individual care and to the judicious admission of students as well as to the prompt elimination from the various departments of students found to be inadequately prepared in fundamental studies or in seriousness of purpose, there is very little likelihood and no excuse for failure on the part of the student.

The engineer today must be more than a machinist, electrician or surveyor. He can no longer be a self-made man in the old sense. He must possess the acumen and culture which only a broad college training and college association can give, and his acquaintance with and love of mathematics and science should be the foundation on which his knowledge of their technical application is based.

This is the ideal which Santa Clara cherishes for the engineers who shall receive their education from her, and the notable work which her graduates are doing proves that this ideal leads to success.

ENTRANCE REQUIREMENTS

To qualify for Freshman standing in the College of Engineering, applicants must be graduates of an accredited high school and must present no less than sixteen units including the following:

English	3	Trigonometry	½
Foreign Language (one language)	2	History	1
Algebra	2	Chemistry	1
Geometry	1	Physics	1

It is strongly recommended that the unprescribed units be in Mathematics, Languages or Sciences.

COURSES — DEGREES

Courses are offered leading to the degrees of Bachelor of Civil Engineering, Bachelor of Electrical Engineering and Bachelor of Mechanical Engineering. These courses aim, first, to give the student a thorough knowledge of the sciences on which all Engineering is based; second, to develop practical judgment so that he may be able to use his knowledge and information to best advantage.

The curricula in the College of Engineering are arranged according to two plans, respectively called the Four Year Plan and the Five Year Plan. Technical course content and requirements for graduation are the same in both plans. The required work prepares the student for accepting and discharging the responsibilities of his chosen profession. The Five Year Plan, (1) distributes the required work over a longer period, and (2) permits election of added cultural and technical courses for which no time is allowed in the Four Year Plan. A Five Year Plan student, free from deficiencies in University work, may register for 18 units of new work. Upon approval by the Dean of the College of Engineering, change can be made at any time from the Four Year Plan to the Five Year Plan. The change from the Five Year Plan to the Four Year Plan cannot be effected without transfer of sufficient credits to meet the schedule in the latter plan.

Civil Engineering relates to works in connection with transportation, such as highways, railways and canals; to structural works, such as bridges, buildings, dams, piers and many other structures constructed in wood, steel or reinforced concrete; to sanitary works and works which have to do with water, such as the collection, purification and distribution of water for a municipal supply; the collection, treatment and disposal of sewage; the drainage of some lands and the irrigation of others. In all of these fields of work, technical knowledge is required for the execution of successful designs, and for their proper operation and maintenance.

All Civil Engineering students are required to attend a four-weeks summer session in surveying immediately following the close of their sophomore year. This work fulfills the requirements of one of the summers that must be spent on engineering work. Students are required to present 135 units for graduation in addition to the Summer Surveying course.

Electrical Engineering is a profession of widespread application. In spite of this diversity the basic principles apply equally to the generation, transmission and utilization of electrical energy for heating, mechanical power, illumination, wire and radio communication, electronic control, measurements, navigational aids, etc. At Santa Clara the underlying preparation in mathematics, physics, chemistry, mechanics, thermodynamics, and drawing is given in the first three-fourths of the scheduled program. This preparation is common to Mechanical and Electrical Engineering so the courses are largely the same. In the remaining fourth of the program the fundamental principles are applied to vacuum tube circuits, transmission lines, rotating machinery, etc., to formulate working rules, explain operating behavior and establish and apply economic and technical design criteria. The aim is always to develop the student's ability to apply the fundamental principles. In the final semester the application studies are continued in power of communications according to the interest of the student.

Mechanical Engineering is an extensive phase of engineering representing a large segment of engineering activity. The activities of engineers in Mechanical Engineering may be subdivided into research, development and design, production, operation, sales, service and management. These

activities may be associated with products ranging from supersonic aircraft with rocket power plants to domestic refrigerators. To provide suitable fundamental training for this diversity of potential employment is the aim of the Mechanical Engineering Department.

This fundamental training is provided through courses in the basic laws of physics and chemistry and by courses in:

1. Physical properties of materials; physical design beginning with mechanical drawing and continuing with studies in mechanical motions, stress, vibration, and ease of manufacture.
2. Thermodynamic properties of materials; power and energy design consideration of power plants, pumping and piping systems, refrigeration and heat transfer apparatus.
3. Economics of machine manufacture and operation and the economics of engineering processes.
4. Operation and analysis of mechanical equipment and description of these investigations in the form of written and oral reports.

By suitable electives chosen by the student, he may place special emphasis on the general subject in which he is most interested. He may choose from the general subjects listed below.

Civil Engineering:	Transportation Hydraulics Sanitary
Electrical Engineering:	Power Communications
Mechanical Engineering:	Air Conditioning Heat Power Industrial Engineering

GRADUATE DEGREES

For the degrees of Civil Engineer (C.E.), Electrical Engineer (E.E.), and Mechanical Engineer (M.E.), it is required that the candidate be a graduate of the College of Engineering of this University who has been engaged in acceptable professional work for a period of not less than three years after receiving the Bachelor's degree. Candidates for these degrees must declare their candidacy and file with the Dean of the College of Engineering and the Office of the Registrar a detailed statement covering their professional study and experience and an outline of their proposed thesis not later than December 31st preceding the commencement at which they wish to receive the degree, and they must submit the completed thesis not later than two months prior to the date fixed for the annual conferring of degrees.

INSPECTION TRIPS

One important advantage of the University is its proximity to the many industrial establishments of the San Francisco metropolitan district and this opportunity is taken advantage of by inspection trips to special industries. In this way students are given a practical insight into the operation of these engineering industries.

STUDENT BRANCHES:
AMERICAN SOCIETY OF CIVIL ENGINEERS
AMERICAN INSTITUTE OF ELECTRICAL ENGINEERS
AMERICAN SOCIETY OF MECHANICAL ENGINEERS

Student Branches of the A.S.C.E., A.I.E.E. and A.S.M.E. have been established at the University, and are open to students of Civil, Electrical and Mechanical Engineering for the discussion of current problems.

REQUIREMENTS FOR GRADUATION

In all curricula of the College of Engineering, 135 credits are required for graduation. A credit is given for each one-hour recitation or lecture per week, carried satisfactorily for one semester or for three hours per week spent in laboratory, drawing room or shop. All regular students free from deficiencies in university work may register for 18 units of new work.

At least two summer vacations must be spent on engineering work before graduation. A detailed report of this work must be handed to the Dean of the College of Engineering within one month of the opening of the first semester of the Senior year.

Before anyone is admitted to the final examinations of the second semester of the Senior year, he must submit an acceptable thesis on a subject which he has chosen with the approval of the Dean of the College of Engineering. It must deal with an engineering subject and must give evidence of original investigation of some engineering problem. This thesis must be typewritten on paper 8½ x 11 inches and must present a bibliography, a description of an investigation and a recommended solution for the problem. The problem must be clearly stated and the proposed method of its solution outlined in the introduction to the thesis. The investigation may be either experimental or analytical or both, and must result in the statement of an original fact (or facts) which has been discovered by the student or in an original design (or designs) which has been indicated by the investigation. Graphic Art, in the form of curves, drawings, and tables, should be freely used in the thesis. The thesis should give adequate evidence of accomplishment of the minimum work equivalent to the academic credit award.

Residence of at least one year immediately preceding graduation is required for the granting of any undergraduate degree.

GRADUATION HONORS

A candidate for undergraduate or professional degree who has a grade point average of 2.40 graduates **Cum Laude**; one who has a grade point average of 2.65, **Magna Cum Laude**; and one who has a grade point average of 2.85, **Maxima Cum Laude.**

Graduation honors are based on the work of the four years.

The University reserves the right to exclude from graduation honors students who have been subject to disciplinary probation, or who, in the judgment of the Committee of Honors, are lacking in acceptable qualities of good citizenship. The work of transfer students will be interpreted in terms of the grades of this University.

COLLEGE OF ENGINEERING

FOUR YEAR PLAN

Freshman Year

All-Four-Year Engineering Students

Fall Semester	R	L	U	Spring Semester	R	L	U**
Relig. 5 (The Sacraments)	2		½	Relig. 6 (The Life of Christ)	2		½
Mil. Sci. 1 (Basic Course)	2	1	1½	Mil. Sci. 2 (Basic Course)	2	1	1½
Math. 1 (Algebra and Trig.)	4		3	Math. 3B (Anal. Geom. and Calculus)*	3		3
Chem. 3A (General Chemistry)	2	6	4	Chem. 3B (General Chemistry)	2	6	4
Engl. 1A (Composition and Literature)	3		3	Engl. 1B (Composition and Literature)	3		3
G.E. 1 (Drawing)		6	2	Physics 8 (General Physics)	2		2
G.E. 7 (Orientation)	1		1	G.E. 2 (Drawing)		6	2
M.E. 11 (Shop)		3	1	M.E. 12 (Shop)		3	1
Pol. Sci. 20A (American Inst.)	1		1	Pol. Sci. 20B (American Inst.)	1		1
			17				18

FIVE YEAR PLAN

Freshman Year

This is a suggested five year program. Individual schedules will be arranged according to each student's needs. The minimum requirement includes all courses listed in the four year program.

	R	L	U		R	L	U
Relig. 5 (The Sacraments)	2		½	Relig. 6 (The Life of Christ)	2		½
Mil. Sci. 1 (Basic Course)	2	1	1½	Mil. Sci. 2 (Basic Course)	2	1	1½
Math. 1 (Algebra and Trig.)	3		3	Math. 3B (Anal. Geom. and Calculus)*	3		3
Engl. 1A (Composition and Literature)	3		3	Engl. 1B (Composition and Literature)	3		3
G.E. 1 (Drawing)		6	2	Pub. Spk. 1 (Fund. of Exp.)	1		1
G.E. 7 (Orientation)	1		1	G.E. 2 (Drawing)		6	2
M.E. 11 (Shop)		3	1	M.E. 12 (Shop)		3	1
Pol. Sci. 20A (American Inst.)	1		1	Pol. Sci. 20B (American Inst.)	1		1
***Electives			1 to 3	***Electives			1 to 3
			14 to 16				14 to 16

*Students without the prescribed high school mathematics prerequisites will register for Math. C. Other students will register for Math. 1. At the end of ten hours instruction in Math. 1, a mathematics achievement test will be given. Those students passing this test will be immediately promoted to Math. 3A. (See Mathematics Page 123.)

**R—Recitation, L—Laboratories, U—Units.

***Depending on the total desirable load, up to 5 units of elective courses may be added. It is recommended that all elective courses be selected to insure an integrated sequence of study.

NOTE: Five-year freshmen who plan to register for the four-year sophomore program must make up Analytic Geometry and Differential Calculus 3A and 3B and Chemistry during the summer at the end of the freshman year, and Physics 8 during the second semester of the freshman year or during the summer at the end of the freshman year.

CIVIL ENGINEERING

FOUR YEAR PLAN

Sophomore Year

Fall Semester	R	L	U	Spring Semester	R	L	U
Relig. 7 (The Existence and Essence of God)	2		½	Relig. 8 (Creation)	2		½
Mil. Sci. 3 (Basic Course)	2	1	1½	Mil. Sci. 4 (Basic Course)	2	1	1½
Math. 43 (Integral Calculus)	3		3	Math. 44 (Calculus)	3		3
Physics 9 (General Physics)	3	6	5	Physics 10 (General Physics)	3	3	4
C.E. 6 (Surveying)	2		2	C.E. 58 (Survey Practice)		3	1
C.E. 57 (Survey Practice)		6	2	C.E. 171A (Graphic Problems)		3	1
G.E. 15 (Mechanics-Statics)	3		3	G.E. 16 (Mech.-Materials)	4		4
				G.E. 66 (Materials Lab.)		3	1
			17				16

C.E. 8—Summer School of Surveying—following the Sophomore Year—4 units.

Junior Year

	R	L	U		R	L	U
Relig. 107 (God, The Redeemer, and Redemption)	2		½	Relig. 108 (Moral Guidance)	2		½
Phil. 61 (First Prin. of Phil.)	3		1½	Phil. 62 (Nature of Man)	3		1½
Math. 121 (Diff. Equations)	3		3	Engl. 14 (Tech. English)	2		2
C.E. 109 (Curves & Earthwork)	2		2	C.E. 122B (Structures)	3		3
C.E. 159 (Curves and Earthwork Lab.)		3	1	C.E. 172 (Structural Design)		6	2
Pub. Spk. 11 (Fund. of Expr.)	1		1	E.E. 135 (Elements of E.E.)	3		3
G.E. 115 (Dynamics)	2	3	3	E.E. 185 (E.E. Lab.)		3	1
G.E. 117 (Matls. & Processes)	2		2	G.E. 116 (Mechanics-Fluids)	2		2
M.E. 130 (Thermodynamics)	3		3	G.E. 166 (Fluids Lab.)		3	1
M.E. 180 (M.E. Lab.)		3	1				
			18				16

Senior Year

	R	L	U		R	L	U
Relig. 109 (Fundamental Apologetics)	2		½	Relig. 110 (The Sacrament of Matrimony)	2		½
Phil. 63 (Knowledge & Reality)	3		1½	Phil. 64 (Philosophy of Morals)	3		1½
C.E. 123A (Structures)	3		3	C.E. 124 (Reinforced Concrete)	4		4
C.E. 173A (Structural Design)		3	1	C.E. 174B (Structural Design)		6	2
C.E. 126 (Soil Mechanics)	2		2	C.E. 170B (Thesis)		3	1
C.E. 176 (Soil Lab.)		3	1	G.E. 108 (Seminar)	1		1
C.E. 131 (Sanitary Engr.)	3		3	G.E. 121 (Engr. Economics)	3		3
C.E. 181 (Sanitary Lab.)		3	1	G.E. 126 (Engr. Review)		3	1
C.E. 170A (Thesis)		3	1	Electives*			3
Geology 101 (Engr. Geology)	2	3	3				
			17				17

Electives

	R	L	U
C.E. 110 (Hydraulics)	2	3	3
C.E. 133 (Sanitary Engr. Des.)	2		2
C.E. 183 (Sanitary Lab.)		3	1
C.E. 142 (Highway Engineering)	2		2
C.E. 192 (Highway Lab.)		3	1

*Other electives approved by the Chairman of the Department and up to 4 units of advanced Military Science may be substituted for any of the above-listed electives.

CIVIL ENGINEERING

FIVE YEAR PLAN

Sophomore Year

Fall Semester	R	L	U	Spring Semester	R	L	U
Relig. 7 (The Existence and Essence of God)	2		½	Relig. 8 (Creation)	2		½
Mil. Sci. 3 (Basic Course)	2	1	1½	Mil. Sci. 4 (Basic Course)	2	1	1½
Math. 41 (Anal. Geom. & Review)	5		4	Math. 42 (Diff. Calculus)	3		3
Chem. 3A (General Chemistry)	2	6	4	Chem. 3B (General Chemistry)	2	6	4
C.E. 6 (Surveying)	2		2	Physics 8 (General Physics)	2		2
C.E. 57 (Survey Practice)		6	2	C.E. 58 (Survey Practice)		3	1
			14				12

C.E. 8—Summer School of Surveying—following the Sophomore Year—4 units.

Junior Year

	R	L	U		R	L	U
Relig. 107 (God, The Redeemer, and Redemption)	2		½	Relig. 108 (Moral Guidance)	2		½
Phil. 61 (First Prin. of Phil.)	3		1½	Phil. 62 (Nature of Man)	3		1½
Math. 43 (Integral Calculus)	3		3	Math. 44 (Calculus)	3		3
Physics 9 (General Physics)	3	6	5	Physics 10 (General Physics)	3	3	4
C.E. 109 (Curves & Earthwork)	2		2	C.E. 171A (Graphic Problems)		3	1
C.E. 159 (Curves & Earth. Lab.)		3	1	G.E. 16 (Mechanics-Materials)	4		4
G.E. 15 (Mechanics-Statics)	3		3	G.E. 66 (Materials Lab.)		3	1
			16				15

Sub-Senior Year

	R	L	U		R	L	U
Relig. 109 (Fundamental Apologetics)	2		½	Relig. 110 (The Sacrament of Matrimony)	2		½
Phil. 63 (Knowledge & Reality)	3		1½	Phil. 64 (Philosophy of Morals)	3		1½
Math. 121 (Diff. Equations)	3		3	Engl. 14 (Tech. English)	2		2
G.E. 115 (Dynamics)	2	3	3	C.E. 122B (Structures)	3		3
G.E. 117 (Matls. & Processes)	2		2	C.E. 172 (Structural Design)		6	2
M.E. 130 (Thermodynamics)	3		3	E.E. 135 (Elements of E.E.)	3		3
M.E. 180 (M.E. Lab.)		3	1	E.E. 185 (E.E. Lab.)		3	1
				G.E. 116 (Mechanics-Fluids)	2		2
				G.E. 166 (Fluids Lab.)		3	1
			14				16

Senior Year

	R	L	U		R	L	U
C.E. 123A (Structures)	3		3	C.E. 124 (Reinforced Concrete)	4		4
C.E. 173A (Structural Design)		3	1	C.E. 174B (Structural Design)		6	2
C.E. 126 (Soil Mechanics)	2		2	C.E. 170B (Thesis)		3	1
C.E. 176 (Soils Lab.)		3	1	G.E. 108 (Seminar)	1		1
C.E. 131 (Sanitary Engr.)	3		3	G.E. 121 (Engr. Economics)	3		3
C.E. 181 (Sanitary Lab.)		3	1	G.E. 126 (Engr. Review)		3	1
C.E. 170A (Thesis)		3	1	Electives*			3
Geology 101 (Engr. Geology)	2	3	3				
			15				15

Electives

	R	L	U
C.E. 110 (Hydraulics)	2	3	3
C.E. 142 (Highway Engineering)	2		2
C.E. 192 (Highway Lab.)		3	1
C.E. 133 (Sanitary Engr. Des.)	2		2
C.E. 183 (Sanitary Lab.)		3	1

*Other electives approved by the Chairman of the Department and up to 4 units of advanced Military Science may be substituted for any of the above-listed electives.

ELECTRICAL ENGINEERING

FOUR YEAR PLAN

Sophomore Year

Fall Semester	R	L	U	Spring Semester	R	L	U
Relig. 7 (The Existence and Essence of God)	2		½	Relig. 8 (Creation)	2		½
Mil. Sci. 3 (Basic Course)	2	1	1½	Mil. Sci. 4 (Basic Course)	2	1	1½
Math. 43 (Integral Calculus)	3		3	Math. 44 (Calculus)	3		3
Physics 9 (General Physics)	3	6	5	Physics 10 (General Physics)	3	3	4
Engl. 14 (Tech. English)	2		2	E.E. 125 (Elect. Circuits)	3		3
G.E. 15 (Mechanics-Statics)	3		3	G.E. 16 (Mechanics-Materials)	4		4
M.E. 15 (Instrumentation Lab.)	1	3	2	G.E. 66 (Materials Lab.)		3	1
			17				17

Junior Year

	R	L	U		R	L	U
Relig. 107 (God, The Redeemer, and Redemption)	2		½	Relig. 108 (Moral Guidance)	2		½
Phil. 61 (First Prin. of Phil.)	3		1½	Phil. 62 (Nature of Man)	3		1½
Math. 121 (Diff. Equations)	3		3	Physics 106 (Elect. Meas.)	2	3	3
Pub. Spk. 11 (Fund. of Expr.)	1		1	E.E. 120 (Elem. Vacuum Tubes)	2		2
E.E. 126 (Elect. Machines)	3		3	E.E. 150 (Intro. Commun. Circuits)	2		2
E.E. 173 (Elect. Circ. & Mach. Lab.)		6	2	G.E. 116 (Mechanics-Fluids)	2		2
G.E. 115 (Dynamics)	2	3	3	G.E. 166 (Fluids Lab.)		3	1
M.E. 125 (Thermodynamics)	3		3	M.E. 126 Thermodynamics)	3		3
				M.E. 174 (M.E. Lab.)		6	2
			17				17

Senior Year

	R	L	U		R	L	U
Relig. 109 (Fundamental Apologetics)	2		½	Relig. 110 (The Sacrament of Matrimony)	2		½
Phil. 63 (Knowledge & Reality)	3		1½	Phil. 64 (Philosophy of Morals)	3		1½
E.E. 121 (Basic Electronics)	3		3	E.E. 170B (Thesis)		3	1
E.E. 181 (Electronics Lab.)		3	1	G.E. 108 (Seminar)	1		1
E.E. 127 (Adv. Circuits & Machines)	3		3	G.E. 121 (Engr. Economics)	3		3
E.E. 177 (Adv. Cir. and Mach. Lab.)		3	1	G.E. 126 (Engr. Review)		3	1
E.E. 138 (Elec. Circ. Trans.)	2		2	M.E. 118 (Machine Design)	1	6	3
E.E. 171 (Elect. Design)		6	2	Electives*			5
E.E. 170A (Thesis)		3	1				
G.E. 117 (Materials & Proc.)	2		2				
			17				16

Electives

As the demand warrants, courses from the following list of Electives for Electrical Engineering will be offered.

	R	L	U		R	L	U
E.E. 122 (Adv. Electronics)	2		2	E.E. 152 (Adv. Commun. Circuits)	2		2
E.E. 128 (Adv. A-C Machines)	2-4		2-4	E.E. 172 (Power Gen. & Dist.)		6	2
E.E. 138 (Elect. Circ. Trans.)	2		2	E.E. 178 (Adv. A-C Machines Lab.)		3	1
E.E. 140 (Symetrical Compon.)	2		2	E.E. 182 (Adv. Electronics Lab.)		3	1
E.E. 142 (Elect. Illumination)	2-3		2-3	E.E. 188 (Elect. Transients Lab.)		3	1
E.E. 144 (Power Transm. Lines)	2		2				

*Other electives approved by the Chairman of the Department and up to 4 units of advanced Military Science may be substituted for any of the above-listed electives.

ELECTRICAL ENGINEERING

FIVE YEAR PLAN*

Sophomore Year

Fall Semester	R	L	U
Relig. 7 (The Existence and Essence of God)	2		½
Mil. Sci. 3 (Basic Course)	2	1	1½
Math. 41 (Anal. Geom. & Review)	5		4
or			
Math. 43 (Integral Calculus)	3		3
Engl. 14 (Tech. English)	2		2
Electives**			6 to 9
			13 to 17

Spring Semester	R	L	U
Relig. 8 (Creation)	2		½
Mil. Sci. 4 (Basic Course)	2	1	1½
Math. 42 (Diff. Calculus)	3		3
or			
Math. 44 (Calculus)	3		3
Physics 8 (General Physics)	2		2
Electives**			7 to 10
			14 to 17

Five-year students will find it possible to add Chemistry to their Sophomore program, if necessary.

Junior Year

	R	L	U
Relig. 107 (God, The Redeemer, and Redemption)	2		½
Phil. 61 (First Prin. of Phil.)	3		1½
Physics 12 (General Physics)	3	6	5
G.E. 15 (Mechanics-Statics)	3		3
M.E. 15 (Instrumentation Lab.)	1	3	2
Electives**			3 to 6
			15 to 18

	R	L	U
Relig. 108 (Moral Guidance)	2		½
Phil. 62 (Nature of Man)	3		1½
Physics 13 (General Physics)		3	4
E.E. 125 (Electric Circuits)	3		3
G.E. 16 (Mechanics-Materials)	4		4
G.E. 66 (Materials Lab.)		3	1
Electives**			3 to 6
			14 to 17

Sub-Senior and Senior Years

The curricula for the Sub-Senior and Senior Years must include those courses required in the Four Year Plan which have not already been taken. The programs for such students will therefore be arranged to include those subjects plus enough electives to total approximately fifteen units.

Some Suggested Electives for Five-Year Plan

	R	L	U
Chem. 10A (Quant. Analysis)	2	6	4
Econ. 1A (Prin. of Economics)	3		3
B.A. 10A (Accounting)	3	3	4
Engl. 51 (Advanced Composition)	3		3
Hist. 171A (The United States)	3		3

	R	L	U
Chem. 10B (Quant. Analysis)	2	6	4
Econ. 1B (Prin. of Economics)	3		3
B.A. 10B (Accounting)	3	3	4
Hist. 171B (The United States)	3		3

It is recommended that all elective courses be selected to insure an integrated sequence of study.

* Course arrangements may be altered to meet the individual's requirements. However, the alterations must be governed by course prerequisites and all courses required under the four-year plan must be completed.

**Other electives approved by the Chairman of the Department and up to 4 units of Advanced Military Science may be substituted for any of the above-listed electives.

MECHANICAL ENGINEERING

FOUR YEAR PLAN

Sophomore Year

Fall Semester	R	L	U
Relig. 7 (The Existence and Essence of God)	2		½
Mil. Sci. 3 (Basic Course)	2	1	1½
Math. 43 (Integral Calculus)	3		3
Physics 9 (General Physics)	3	6	5
Engl. 14 (Tech. English)	2		2
G.E. 15 (Mechanics-Statics)	3		3
M.E. 15 (Instrumentation Lab.)	1	3	2
			17

Spring Semester	R	L	U
Relig. 8 (Creation)	2		½
Mil. Sci. 4 (Basic Course)	2	1	1½
Math. 44 (Calculus)	3		3
Physics 10 (General Physics)	3	3	4
E.E. 125 (Elect. Circuits)	3		3
G.E. 16 (Mechanics-Materials)	4		4
G.E. 66 (Materials Lab.)		3	1
			17

Junior Year

	R	L	U
Relig. 107 (God, The Redeemer, and Redemption)	2		½
Phil. 61 (First Prin. of Phil.)	3		1½
Math. 121 (Diff. Equations)	3		3
Pub. Spk. 11 (Fund. of Expr.)	1		1
E.E. 126 (Elect. Machines)	3		3
E.E. 173 (Elect. Circ. & Machines Lab.)		6	2
G.E. 115 (Dynamics)	2	3	3
M.E. 125 (Thermodynamics)	3		3
			17

	R	L	U
Relig. 108 (Moral Guidance)	2		½
Phil. 62 (Nature of Man)	3		1½
G.E. 116 (Mechanics-Fluids)	2		2
G.E. 166 (Fluids Lab.)		3	1
G.E. 121 (Engr. Economics)	3		3
M.E. 118 (Machine Design)	1	6	3
M.E. 126 (Thermodynamics)	3		3
M.E. 174 (M.E. Lab.)		6	2
			16

Senior Year

	R	L	U
Relig. 109 (Fundamental Apologetics)	2		½
Phil. 63 (Knowledge & Reality)	3		1½
G.E. 117 (Materials & Proc.)	2		2
M.E. 119 (Machine Design)	2	6	4
M.E. 138 (Production Control)	3		3
M.E. 141 (Heat Transfer)	2	3	3
M.E. 170A (Thesis)		3	1
Electives*	1	3	2
			17

	R	L	U
Relig. 110 (The Sacrament of Matrimony)	2		½
Phil. 64 (Philosophy of Morals)	3		1½
G.E. 108 (Seminar)	1		1
G.E. 126 (Engr. Review)		3	1
M.E. 170C (Thesis)		6	2
Electives*			11
			17

Electives

	R	L	U
M.E. 142 (Heat Transfer)	2	3	3
M.E. 143 (Machine Vibrations)	2		2
M.E. 145 (I.C. Engines)	3	3	4
M.E. 147 (Metallurgy)	1	3	2
M.E. 150 (Heat., Vent. & Air Conditioning)	3	3	4
M.E. 155 (Aerodyn. & Aircraft Structures)	3	3	4
M.E. 194 (Power Plant Design)	2	1	3

*Other electives approved by the Chairman of the Department and up to 4 units of advanced Military Science may be substituted for any of the above-listed electives.

MECHANICAL ENGINEERING

FIVE YEAR PLAN*

Sophomore Year

Fall Semester	R	L	U	Spring Semester	R	L	U
Relig. 7 (The Existence and Essence of God)	2		½	Relig. 8 (Creation)	2		½
Mil. Sci. 3 (Basic Course)	2	1	1½	Mil. Sci. 4 (Basic Course)	2	1	1½
Math. 41 (Anal. Geom. & Review)	5		4	Math. 42 (Diff. Calculus)	3		3
Chem. 3A (General Chemistry)	2	6	4	Chem. 3B (General Chemistry)	2	6	4
Engl. 14 (Tech. English)	2		2	Physics 8 (General Physics)	2		2
Electives			2 to 5	Electives			3 to 6
			14 to 17				14 to 17

Junior Year

	R	L	U		R	L	U
Relig. 107 (God, The Redeemer, and Redemption)	2		½	Relig. 108 (Moral Guidance)	2		½
Phil. 61 (First Prin. of Phil.)	3		1½	Phil. 62 (Nature of Man)	3		1½
Math. 43 (Integral Calculus)	3		3	Math. 44 (Calculus)	3		3
Physics 9 (General Physics)	3	6	5	Physics 10 (General Physics)	3	3	4
G.E. 15 (Mechanics-Statics)	3		3	G.E. 16 (Mechanics-Materials)	4		4
M.E. 15 (Instrumentation Lab.)	1	3	2	G.E. 66 (Materials Lab.)		3	1
			15				14

Sub-Senior Year

	R	L	U		R	L	U
Math. 121 (Diff. Equations)	3		3	E.E. 125 (Elec. Circuits)	3		3
G.E. 115 (Dynamics)	2	3	3	G.E. 116 (Mechanics-Fluids)	2		2
G.E. 117 (Materials & Proc.)	2		2	G.E. 166 (Fluids Lab.)		3	1
M.E. 125 (Thermodynamics)	3		3	G.E. 121 (Engr. Economics)	3		3
Electives**			2 to 4	M.E. 118 (Machine Design)	1	6	3
				M.E. 126 (Thermodynamics)	3		3
				M.E. 174 (M.E. Lab.)		6	2
			13 to 15				17

Senior Year

	R	L	U		R	L	U
Relig. 109 (Fundamental Apologetics)	2		½	Relig. 110 (The Sacrament of Matrimony)	2		½
Phil. 63 (Knowledge & Reality)	3		1½	Phil. 64 (Philosophy of Morals)	3		1½
E.E. 126 (Elect. Machines)	3		3	G.E. 108 (Seminar)	1		1
E.E. 173 (Elect. Circ. & Machines Lab.)		6	2	G.E. 126 (Engr. Review)		3	1
M.E. 119 (Machine Design)	2	6	4	M.E. 170C (Thesis)		6	2
M.E. 138 (Production Control)	3		3	Electives**			7 to 9
M.E. 141 (Heat Transfer)	2	3	3				
			17				13 to 15

Electives

Same as for Four-Year Mechanical Engineering.

*Course arrangement may be altered to meet the individual's requirements. However, the alterations must be governed by course prerequisite requirements and all courses required under the four-year plan must be completed.

** Other electives approved by the Chairman of the Department and up to 4 units of advanced Military Science may be substituted for any of the above-listed electives.

INDUSTRIAL ENGINEERING OPTION IN MECHANICAL ENGINEERING

FOUR YEAR PLAN

NOTE: Freshman, Sophomore and Junior years are the same for all Mechanical Engineering options except that, in the Industrial Option, M.E. 125, M.E. 126, and M.E. 174 will be omitted from the Junior year and B.A. 10A and 10B (Accounting) will be substituted.

Senior Year

Fall Semester	R	L	U
Relig. 109 (Fundamental Apologetics)	2		½
Phil. 63 (Knowledge & Reality)	3		1½
G.E. 117 (Materials & Proc.)	2		2
M.E. 119 (Machine Design)	2	6	4
M.E. 125 (Thermodynamics)	3		3
M.E. 138 (Production Control)	3		3
M.E. 170A (Thesis)		3	1
Electives*			3
			18

Spring Semester	R	L	U
Relig. 110 (The Sacrament of Matrimony	2		½
Phil. 64 (Philosophy of Morals)	3		1½
G.E. 108 (Seminar)	1		1
G.E. 126 (Engr. Review)		3	1
M.E. 126 (Thermodynamics)	3		3
M.E. 170B (Thesis)		3	1
M.E. 174 (M.E. Lab.)		6	2
Electives*			6
			16

Electives

Same as for Four Year Mechanical Engineering, plus the following courses as demand warrants.

	R	L	U
M.E. 148 (Time Study & Motion Analysis)	3		3
M.E. 151 (Methods Study)	3		3
M.E. 153 (Management Engineering)	3		3
M.E. 154 (Management Engineering)	3		3
M.E. 187 (Time Study Laboratory)		6	2
M.E. 188 (Production Laboratory)		6	2

COLLEGE OF LAW

INTRODUCTION

As an integral part of Santa Clara University, the College of Law aims at developing lawyers who are competent and ethical. To this end, a three year full-time curriculum is offered which is directed to a study of the processes by which the courts and other judicial bodies decide our controversies, and a study of the legal rules and principles which guide them. As observed by many legal educators, "Law is not so much a body of rules as it is a process of reasoning."

To this general purpose the College of Law specifically aims at developing; First, a thorough training in the fundamental processes, principles and reasonings of English and American law, with the foremost modifications peculiar to the State of California; Second, to guide the student toward actual practice and successful passage of the State Bar Examination; Finally, to carry on the student's high moral principles into the profession of law by a conscious emphasis on the great contribution the lawyer can make to society.

The general method of instruction followed is the Case System, however, study-syllabi are prepared by the professors which give direction, emphasis and basic analysis to the student in the preparation of his own note material. "To Challenge", yet "To Guide" is the underlying philosophy of the College. With this conviction in mind, the greatest contact is fostered between teacher and student not only during formal sessions of class, but constantly throughout the day. The faculty offices have been located but a few steps from the library and all of the full-time members of the faculty are required to hold themselves available for consultation with students throughout the day.

PRE-LEGAL PREPARATION

Beyond the requirements of entrance, no specified pre-legal course is demanded; however, since the emphasis in any legal education must continue to be upon the development of the ability to analyze and synthesize, and then to give clarity and conciseness to the expression of this ability, those undergraduate courses which advance this general development should be pursued. **ANY** subject may be taught and studied from an analytical point of view, including those of the fine arts, so that any sound program leading to an academic degree may be followed. However, there are certain subjects which undoubtedly lend themselves more to this growth than others: philosophy, logic, mathematics, the physical sciences, social sciences, to name but a few.

Of great importance to the success of a student in law is the ability to express his learning in clear, concise terms. Having once analyzed a problem, the process is futile without the ability to express those thoughts in adequate written and oral English. It is, therefore, recommended that all pre-legal students avail themselves of three years of college English, emphasizing expository and argumentative composition, both written and oral. Since all examinations in the College of Law and before the State Bar of California are written, this suggestion is most vital.

Finally, it is imperative that good study-habits be developed. Beyond the mere expenditure of time, there must be a **planned, mature, self-scheduled** and **self-disciplined** program of study. Those pre-legal students who are capable of tackling, organizing and successfully concluding a research problem on their own initiative will find the three year study of law both stimulating and highly profitable .

ENTRANCE REQUIREMENTS

The College of Law is open to the following classes of students:

1. Regular Students:

Students are admitted as regular students who have successfully completed at least the first three years of college work either at this University or at some other college or university offering satisfactory courses leading to academic degrees and whose work reflects superior scholastic achievement in upper division work. Students who have followed courses in the College of Arts and Sciences at this University for three years and who are eligible may gain a combined degree. (See "Combined Degrees" under the College of Arts and Sciences.)

2. Special Students:

In rare instances, those who lack the necessary college credits as specified above but whose experience in business or whose private study has made up for their lack of college training and whose maturity and seriousness, fit them, in the discretion of the Committee on Admissions, for the study of law, may be admitted on a probationary basis. Under no circumstances will the number of special students admitted exceed the limits prescribed by the state and national accrediting agencies.

ALL students in the College of Law will be expected to complete satisfactorily a course in General and Applied Ethics such as is offered by the faculty of the College of Arts and Sciences. This requirement may be fulfilled before entrance to the College of Law. However, students who have not fulfilled such requirement before entrance will be required to do so during their attendance in the Law School by taking a course in Survey of Ethics. In such event, no additional fee will be charged for the course. (For description of the course, see "Survey of Ethics" under Philosophy.)

Entrance Examination. **ALL** students applying for admission to the College of Law are required to take the Law School Admission Test administered by the Educational Testing Service. Applicants intending to take the test may obtain detailed information by writing to the Educational Testing Service, P. O. Box 592, Princeton, New Jersey, or 4640 Hollywood Boulevard, Los Angeles 27, California.

ADVANCED STANDING

Any person who has been in regular attendance for at least one academic year at another law school, having similar admission requirements, and approved either by the American Bar Association or the Association of American Law Schools, may in the discretion of the Committee on Admissions, and on such terms as it may prescribe, receive credit for the work done at such other law school not exceeding, in any case, two years. The last year must be spent in residence in the College of Law.

First year students who fail to attain an overall C average at the end of the first year may be required to withdraw from the College of Law. No

student will be permitted to register for the work of the third year unless he has attained an overall C average in the work of the first two years.

GRADUATION REQUIREMENTS

In order to graduate, the student must:

1. Have received credit for at least 76 units of Law, exclusive of Survey of Ethics. (A "unit" is the equivalent of one hour per week for one semester.)

No student is allowed a unit in any course at which he has not been present for 90% of the class hours and in which his average is not at least of D grade. The credit may be earned in part on the basis of work done in other law schools on the part of students admitted to advanced standing as specified previously.

2. Have obtained in the work of his third academic year in law a general grade-point average of C with a weighted average of C for the work of the entire three years.

3. Have fulfilled the requirements of residence for three academic years in either this College of Law or some other approved law school, the last academic year of which in any event must have been spent in this College of Law.

The degree of BACHELOR OF LAWS will be conferred on those students:

Who possess academic degrees before beginning the study of law and have satisfied the requirements set down in 1, 2, & 3 above;

Who have completed three years of college work leading to an academic degree and have satisfied the requirements set down in 1, 2, & 3 above;

Who have been special students and have satisfied the requirements set down in 1, 2, & 3 above.

NO STUDENT in the College of Law is allowed to take the State Examination for admission to the Bar before he has completed successfully the course of study prescribed by the University for the LL.B. degree, and until such successful completion of the course has been certified to by the Dean of the College of Law. Immediate expulsion from the College of Law will follow any violation of this requirement.

ATTENDANCE

Regular attendance at all classes is required. No student while in attendance at this school shall be registered in any other school or college or in any other department of the University of Santa Clara without the written consent of the Dean, except those students who are completing their Ethics requirements or who are getting a combined degree.

Student Activities

Moot Court. The Moot Court program is a Student Bar Association activity, the purpose of which is to give training in the preparation of briefs and in the argument of cases. It is also a valuable aid in the attempt to bridge the gap between law school and practice.

Each year a program of Moot Court competition is carried on, not only within the college itself, but between the colleges of Northern California. Four outstanding participants are selected from the second and senior classes by the Faculty to compete in the Annual Moot Court Competition. This competition is moderated by the Junior Bar Association of the State of California.

Lecture Series. During the school year, prominent attorneys are invited to speak before the student-body on legal problems. These lectures are generally held in the evening, with invitation extended to undergraduate pre-legal students as well as the public at large.

The Annual Survey of California Law. The Student Bar Association assists the University in putting out the Annual Survey of California Law, which is an expert analysis of the yearly decisions handed down by the Appellate and Supreme Court of the State of California. While the articles are written by eminent scholars in the various fields of law, the initial reading of advance sheets and law review articles is done by the students, and all materials are prepared for the experts by them.

Tutorship. Under the supervision of the Dean of the College of Law, outstanding senior students are selected to carry on a program of tutorship of in-coming first year law students. This is a voluntary program born of the democratic nature of the College of Law. First year students are thus given the advantage of the experience of successful students, from a student point of view. Group seminars are held weekly.

Law Scholarships

Law scholarships of stipends of three hundred dollars each are available for men students who give promise of outstanding careers as lawyers and public leaders. These scholarships are available for incoming students, their continuation depending on the maintenance by the recipients of superior achievement in the study of law. All applications should be made through the University Office of Admissions.

DESCRIPTION OF COURSES
and
DEPARTMENTAL REQUIREMENTS

BIOLOGY

Students who wish to make Biology their major subject should plan to meet the following requirements for graduation:

1. Biology 21-22 and Chemistry 1A-1B must be completed with at least a C grade before beginning any upper division course in Biology.
2. Physics 1A-1B must be completed with at least a C grade.
3. In upper division, of the required minimum of 24 units in science, at least 18 units must be taken in Biology, and additional units should be taken in Chemistry. Chemistry 34A must be taken by all. Chemistry 34B or 34C is desirable for all and should be taken by those who plan professional studies in medicine.
4. Botany 32 should be taken by those who plan graduate work as it is normally required for admission to graduate schools in Biology. It is most desirable for those who may plan to transfer to pharmacy.

A grade of C must be maintained in all courses in the major field. In the latter part of the senior year each candidate for a degree may be required to pass a comprehensive examination, which may be oral, written, or both.

21. General Zoology. An introduction to the broader principles of animal biology. Topics treated to include: protoplasm, the cell, metabolism, organ systems adaptations, inheritance, etc. The lectures are supplemented by the laboratory study of certain animal forms. Biology 21 is prerequisite to all other courses in this department except Biology 23 and 24. Two hours lecture, six hours laboratory. Fall semester.
Four units.

22. General Zoology. A continuation of Biology 21 including a study of the main animal phyla and type examples of each. Two hours lecture, six hours laboratory. Spring semester. Four units.
Prerequisite: Biology 21 or 23 and 24.

23-24. General Biology. An introductory course dealing with fundamental biological processes and principles. It is designed to meet the needs of those who do not plan to proceed to more advanced work in Biology. Laboratory work is designed to illustrate and supplement the lectures. Three hours lecture, three hours laboratory. A successful completion of first semester is required to register for Spring semester. Both semesters. Eight units.
Prerequisite: High School Chemistry is desirable.

32. General Botany. An introductory study covering basic principles of plant biology, typical life cycles and a survey of the plant kingdom. A knowledge of basic biological principles and use of the microscope is assumed. Two hours lecture, six hours laboratory. Spring semester.
Four units.

Prerequisite: Biology 21 or 23.

101. Vertebrate Anatomy. A comparative study of the structure, organization, adaptation and classification of the vertebrate animals. In

the laboratory the student dissects the dogfish, necturus and the cat. Two hours lecture, six hours laboratory. Fall semester. Four units.

Prerequisite: Biology 22.

102. Vertebrate Embryology. A study of the processes of cell division, gametogenesis, fertilization, cleavage, gastrulation, germ layer formation, organogenesis and the extra-embryonic membranes. In the laboratory the processes of development are studied from gross material and serial sections. Particular attention is given to the amphibian, bird and mammal. Two hours lecture, six hours laboratory. Spring semester. Four units.

Prerequisite: Biology 22 and 101.

104. History of Biology. The history of the development of Biology in its various branches to their present status, with biographical sketches of the leaders in each field. The outlook for the future . Two hours lecture, normally restricted to Senior students in Biology. Fall semester. Two units.

107. General Histology. A study of the cell and cellular structure and histogenesis of the basic types of tissues. Two hours lecture, six hours laboratory. Fall semester. Four units.

Prerequisite: Biology 22 and 101.

108. Special Problems. Individual work in some specialized branch of biology may be undertaken by senior students who have shown exceptional ability. Hours and units to be arranged.

109. Histological Technique. A laboratory course, supplemented by lectures and demonstrations, in the principles and use of apparatus commonly in use in biological laboratories, together with practical instruction in the more commonly used methods of preparing biological material for microscopic study. Six hours laboratory. Spring semester.

Prerequisite: Biology 22, 101 and 107. Two units.

110. Heredity. An introductory course designed to give a working knowledge of the fundamental principles governing inheritance in plants and animals. Two hours lecture, normally restricted to Senior students in Biology. Spring semester. Two units.

111. General Physiology. A study of fundamental physiological processes based on the physico-chemical activities of the cell. Two hours lecture, six hours laboratory. Fall semester. Four units.

Prerequisite: Biology 21 and 22 or 23.

120. Research Techniques. Supervised work for the senior thesis. One unit.

BUSINESS ADMINISTRATION

The curriculum of the College of Business Administration extends over four years and leads to the degree of Bachelor of Science in Commerce.

The work in this college is divided into that of Lower Division and Upper Division. Students in the College of Business Administration should consult the programs listed in the section on the College of Business Administration to determine their requirements. (cf Page 70.)

10A. Principles of Accounting. A study of the basic principles underlying modern accounting processes with particular emphasis upon their application to the technique of classifying and recording actual

business transactions. Three hours lecture, three hours laboratory. Fall semester. Four units.

Prerequisite: Sophomore standing.

10B Principles of Accounting. A continuation of B.A. 10A. Special attention is given to the problems peculiar to the sole proprietorship, partnership and corporation. Elementary ideas on the problem of asset valuation are also discussed. Three hours lecture, three hours laboratory. Spring semester. Four units.

Prerequisite: B.A. 10A.

11. Introduction to Business. A study of the structure and functioning of business enterprise with emphasis upon the principles and methods of business. Two hours lecture. One semester. Two units.

12. Job Analysis. The course includes an analysis of the various types and kinds of jobs, getting leads, enacting sample interviews, preparing individual brochures, etc. One unit.

30A-B. Survey of Accounting. This course is designed to meet the needs of students who contemplate the practice of law. To that end the phases of accounting treated are those which involve a consideration of partnerships, corporations, ventures, syndicates, estates, trusts, insolvent enterprises, and the problems involving asset valuation in public utility rate cases. Two hours lecture. Two semesters. Four units.

40. Principles of Statistical Method. The object of this course is twofold: Firstly, it presents the techniques of elementary statistical analysis as tools appropriate for the study of quantitative data. Secondly, it considers the logic of statistical induction and the inherent limitations imposed thereon by the nature of the data themselves. The subject matter includes averages, variation, elementary ideas of index numbers, simple linear correlation and elementary time series analysis. Three hours lecture, three hours laboratory. Four units.

Prerequisite: Mathematics 1.

101. Statistical Analysis. Application of the methods of basic least squares with particular reference to the problems of multiple, partial, and curvilinear correlation. Special attention will be given to certain techniques appropriate to the solution of correlations involving times series. Three hours lecture. First semester. Four units.

Prerequisite: B.A. 40.

102. Statistical Analysis. The principles of statistical inference will be considered together with the problems of small samples, tests of significance, statistical estimation, contingency tables, and analysis of variance and covariance. Three hours lecture. Second semester.

Prerequisite: B.A.101. Four units.

121. Finance. An introduction to the problems surrounding the procurement of funds needed for carrying on a modern business enterprise. Topics covered will include: financial organization of modern industry; the instruments of enterprise finance; promotion and sale of securities; financing of operations of the going-concern; problems of financing growth and expansion; financial readjustments. Three hours lecture.

Three units.

124. Investments and Investment Institutions. As Corporation Finance deals with the problems of business management devising ways and means of procuring funds for enterprise operations, so this course will deal with the market for funds as viewed by those individuals and institutions who are offering those funds in that market. Therefore, among the subjects to be considered will be the nature of the money market;

institutions operating therein; and because of the significance of the presence of government, government control thereof. It will be presumed that a student electing this course possesses a working knowledge of commercial and central bank operations and of the fundamentals of enterprise finance. Three hours lecture. Three units.

125. Problems in Finance. A detailed analysis of specific problems in corporation finance. The background and needs of those enrolling will determine the specific topics covered. Units by arrangement.

127. Problems in Public Finance. A continuation of Economics 120. Attention will be given to current problems in fiscal matters. Units by arrangement.

128. Business Forecasting. This course is concerned with the techniques of forecasting business fluctuations. Topics discussed are the recognition of forecasting of business; forecasting at the national, industry, and company levels; forecasting for geographic areas and in time; and long, intermediate and short term intervals of forecasting. Methods of forecasting examined are the opinion, historical, correlation, multiple factors and component elements. Experience in forecasting is gained by the application of the several methods of forecasting to published business data which respond differently to changing economic conditions. The interrelationship of economic activity is stressed. Three hours lecture. One semester. Three units.

130. Accounting Valuation. A study of the theory and technique applied in the valuation of assets and liabilities in the preparation of private enterprise balance sheets and profit and loss statements. Consideration will also be given, where appropriate, to the similarities and differences between the accountants' problem of valuation and the economists' problem of value.
Prerequisite: B.A. 10B. Three units.

131. Accounting; Proprietorship. Problems arising from the existence of more than one proprietor in an enterprise will be discussed as well as the technique and theory underlying the accounting for interests in the net worth of an enterprise and changes therein. About one-third of the course will be devoted to partnerships and the remaining two-thirds to corporations. Three units.
Prerequisite: B.A. 130.

132A. Accounting Problems. The theory and technique underlying the preparation of statements for certain situations will be discussed and illustrative problems solved. Among the topics discussed will be bankruptcy, installment sales, branch accounting, estates and trusts, and public accounts. Other special problems by arrangement with the instructor.
Prerequisite: B.A. 131. Units by arrangement.

132B. Continuation of 132A, with emphasis on parent and subsidiary accounting. Units by arrangement.
Prerequisite: 132A.

133. Cost Accounting. A study of the problems involved in recording the internal transactions of modern business enterprise, for use by management in control of activities. Particular emphasis is on industrial concerns but application to trading concerns, both wholesale and retail, are discussed. Particular topics include the determination of unit product costs, departmental costs, allocation of overhead, standard costs and budgetary control. Three hours lecture. Units by arrangement.
Prerequisite: B.A. 10B.

134. Accounting Systems. The theoretical and practical problems involved in setting up accounting systems will be considered with special

reference to the prompt preparation of reports for the use of management and the minimizing of costs of operating the system.

Prerequisite: B.A. 131. Units by arrangement.

135. Analysis of Financial Statements. This course is concerned with the interpretation of the statistical significance of the numerical data compiled from accounting and supplementary records. Emphasis is placed upon statistical interpretation of the typical financial statements and interim reports prepared for the use of management. Three hours lecture. Three units.

136. Industrial Cost Analysis and Research. This course consists of two parts: (a) advanced study in problems of cost accounting, e.g., investigation of problems of allocation of production costs; analysis and determination of overhead cost rates; determination of differential production costs; standard setting for standard cost systems; installation of standard cost systems and their use for control; (b) production cost research in representative industrial plants in this geographic area. Two-thirds of the course time will be spent in investigations of real cost problems in these plants. This is to train the student in the practical application of cost techniques to the determination and analysis of firm costs. Three hours. One semester. Three units.

Prerequisite: B.A. 133.

137. Auditing. This course covers both theory and practice of auditing, discussion being supplemented with problems, questions, specimen working papers applicable to balance sheet audits, and laboratory work illustrating audit procedure. Auditing procedure involved in connection with cash and cash funds, receivables, inventories, investments, deferred charges, capital assets, intangible assets, liabilities, both actual and contingent, accounts showing net work, closing of an audit, and preparation of audit reports. Three hours lecture. Three units.

Prerequisite: B.A. 131.

138. Income Taxation. This course presents the underlying principles of income taxation and the special accounting and management problems involved in the determination of tax liability. The course develops the concept of taxable income and deals with special problems of individuals, partnerships, trusts, and corporation income taxes. Three hours lecture. One semester. Three units

141. Budgeting. A study of the preparation and the use of business budgets. Work in the course consists of the preparation of sales, production, materials, overhead, selling expense, and cash budgets which are assembled in a complete budget. One semester. Three units.

150. Life Insurance. Studies of the nature, and of the business and personal uses of life insurance and annuities; contracts; policy conditions; selection of risks; types of carriers; mathematical bases; group, wholesale, and industrial insurance; organization, management, regulation, taxation, and investment policy of legal reserve companies. One semester. Three units.

155A (L-18A). Business Law. The nature and purpose of law and the historical development and its functions with emphasis on Contracts, Agency and Sales, Bailments and Carriers, and Property. Three hours lecture. Three units.

155B (L-18B). Business Law. Continuation of Business Law 155A with emphasis on Negotiable Instruments, Partnerships, Corporations, Bankruptcy, and Real Estate. Three hours lecture. Three units.

159. Economics of Enterprise. Economic analysis with particular emphasis on the problems of the business firm in the areas of price and

output. Exposition of the foregoing will be achieved primarily by centering attention first on the environment of the industry of which the firm is a part. Three hours lecture. Three units.

160. Industrial Organization Management. The purpose of this course is to give the student a working knowledge of fundamental principles underlying the management of business enterprises. The student is trained in methods of identifying and evaluating the influences upon a business enterprise, and then is given a comprehensive view of modern practices of planning, organizing, and controlling various functional activities in business. Three hours lecture. Fall semester. Three units.

162A. Business Policies and Management. The purpose of the course is to develop the ability to apply economic analysis to the solution of the individual firm's problems, and to study the effect of such decisions on the economy as a whole. Included is a study of the principles involved in policy formation and the problems embodied in establishing responsibilities for the executive. Three hours lecture. Three units.

Prerequisite: Senior Standing. College of Business Administration.

162B. Continuation of 162A. Three hours lecture. Three units.

163. Production Control. The problem of the production of goods. Factors which aid modern productivity. Coordination of sales and manufacturing. Organization for production control. Research. Budgets. Materials. Machine replacement. Methods and standards. Planning and routing. Operation and instruction sheets. Centralized control of production. Inspection. Measures of factory performance. Three hours lecture. Three units.

164. Time Study and Motion Analysis. Measurement of labor. Operation analysis. Motion Study. Process Charts. Laws of motion economy. Micromotion study. Film analysis procedure. Standardizing the job. Skill. Effort. Formula expression. Formula working sheets. Three hours lecture. Three units.

165. Retailing. A study of the organization and management of retail establishments. Among the topics discussed will be; store location; organization; policies; sales systems; profit; turnover; buying; the physical control of inventories; personnel; statistics; summaries for management control. Three hours lecture. Spring semester. Three units.

Prerequisite: B.A. 160.

166. Personnel Management. The purpose of this course is to give the student a thorough knowledge of the principles of scientific management and the ability to recognize the limitations and uses of the tools and mechanism of management. Throughout the course, such management devices as present-day industrial tendencies, labor maintenance and control, wage payment and wage incentives, inspection, and cost analysis are studied as aids in clarifying and solving management problems. Three hours lecture. Three units.

167. Purchasing. The procurement of materials, equipment and supplies in industrial, merchandising, governmental and institutional organizations are discussed. Topics covered include the scope of the purchasing functions, purchasing procedure, quality control, quantity control, sources and assurance of supply and price policies. This course is designed for people in the industrial, wholesale, and retail fields. Three hours lecture. One semester. Three units.

181. Principles of Marketing. The nature and importance of marketing; nature of producer and consumer; extent of and forces behind markets; marketing functions; cooperative marketing; methods and chan-

nels of distribution; the transportation problems connected with marketing; market price; government authority; trends in present marketing methods and policies. Three hours lecture. Three units.

182. Marketing Problems. The philosophy and technique of the scientific method applied to market problems. Practical research procedure; sources of market facts; methods of collecting and treating market data; research agencies; the development of marketing methods and policies based upon the results of market research. Three hours lecture.
Prerequisite. B.A. 181. Three units.

183. Transportation. An economic analysis of the principle forms of commercial transportation in the United States. The particular problems of rail, water, motor, air and pipe line transportation are considered. Three hours lecture. Three units.

184. Advertising. Fundamental principles; an analysis of the important psychological factors in advertising. Human wants; buying motives and reactions are studied to comprehend the effects of various practices and methods of advertising upon consumers and middlemen. Three hours lecture. Three units.

185. Salesmanagement. This course in Salesmanagement provides the necessary background material for men and women who plan to follow a career in sales. Some of the topics which will be discussed include: Sales Planning—Routing of Salesmen and Sales Quotas, Product Planning and Product Research, Choice of Distribution Channels; Prices and Terms of Sale; Sales Programs and Sales Promotion; Sales Department Organization, Selection, Training, Compensation, and Management of the Sales Force, Inventory Policy and Control; Sales Costs and Budgets; Sales and Market Research. Three hours lecture. Three units.

186. Salesmanship. Personal qualifications of the salesman; evaluating the needs of the prospective buyer; locating prospects; securing sales interviews; methods of arousing interest; analyzing different types of customers; how to deal with them; conducting sales demonstrations; answering objections, securing action; maintaining customer good-will. Three hours lecture. Three units.

187. Elementary Traffic Management. Only those people possessing a broad knowlelge of traffic in all its phases are capable of solving the modern problems of carriers and shippers. This is a fundamental course in freight classification. Freight movement and routing, handling and storage, and shipping papers, based on practical experience with many constructive transport suggestions. Three hours lecture. Three units.

199A. Marketing Research and Analysis. The scope and importance of marketing and sales analysis and planning; types of research; collecting and analyzing data; presenting and interpreting results. Three hours lecture. One semester. Three units.

199B. Marketing Research and Analysis. Continuation of B.A. 199A with special emphasis of individual research. Three hours lecture. One semester. Three units.

CHEMISTRY

Minimum requirements for a degree of Bachelor of Science in Chemistry will comprise the following lower division courses as outlined by the Chemistry Department—Chemistry 1A and 1B; Chemistry 10A and 10B; Chemistry 30A and 30B; Physics 1A-1B (recommended for students planning graduate work, Physics 8-10): Mathematics 3A, 3B, 4A, and 4B; English, one year, including the writing of some technical paper or report. **The grade of C must be maintained in each course.**

The major program must include the following upper division courses in chemistry, including Chemistry 150A, 150B, 150C, and Chemistry 180 (Methods of research and senior thesis). In addition, from six to eight units of advanced topics in chemistry must be taken. These topics may include two or more courses in the upper division series, such as courses in advanced organic chemistry, advanced analytical chemistry, advanced inorganic chemistry and selected topics in physical chemistry. Two full years of chemistry are required before admission to any of these advanced courses. Further requirements include a reading knowledge of German or French, preferably German.

1A. Inorganic Chemistry. A study of the fundamentals and properties of the elements and compounds with solution of problems. Includes a thorough discussion and mastery of the laws and theories of chemistry. Three hours lecture, six hours laboratory. Fall semester. Five units.

1B. Inorganic Chemistry. A continuation of Chemistry 1A. The laboratory study includes a course in qualitative analysis, consisting of a systematic analysis of cations and anions, together with quizzes and solution of illustrative problems. Three hours lecture, six hours laboratory. Spring semester. Five units.

2A. General Chemistry. Discussion of elementary principles and properties of the more important elements with their compounds. Includes a systematic study of important theories. Laboratory and quiz to accompany the lectures. This course is designed to meet the science needs of those who do not plan to proceed to more advanced work in chemistry. Three hours lecture, three hours laboratory. Fall semester. Four units.

2B. General Chemistry. A continuation of Chemistry 2A. Descriptive study of the elements is continued, together with a brief study of qualitative analysis. Spring semester. Three hours lecture, three hours laboratory. Four units.

3A. General Chemistry. Fundamental laws of chemistry. Chemical equations. Properties of elements and compounds. Application of chemical principles and calculations to engineering projects. This course is intended primarily for engineering students. Two hours lecture, six hours laboratory. Fall semester. Four units.

3B. General Chemistry. A continuation of Chemistry 3A. The laboratory work presents an introduction to the methods of detecting metals and non-metals commonly encountered in engineering practices. Two hours lecture, six hours laboratory. Spring semester. Four units.

10A. Quantitative Analysis. Introduction to the common methods of volumetric analysis. Analytical problems in acidimetry, alkalimetry, oxidimetry, and volumetric precipitations. Lectures, discussions and quizzes. Two hours lecture, six hours laboratory. Fall semester. Four units.

10B Quantitative Analysis. Introduction to the common methods of gravimetric analysis. Methods of electrolytic deposition and colorimetry. Lectures, discussions and quizzes. Two hours lecture, six hours laboratory. Spring semester. Four units.

14. Quantitative Analysis. A study of both gravimetric and volumetric analysis. Intended primarily for Pre-Medical students. Two hours lecture, six hours laboratory. Fall semester. Four units.

30A. Organic Chemistry. The Aliphatic Compounds. Introduction to organic chemistry. A course dealing with the chief classes of the chain compounds of carbon. Includes preparative work and a brief

introduction to qualitative organic chemistry. Three hours lecture, six hours laboratory. Fall semester. Five units.

30B. **Organic Chemistry.** The Aromatic Compounds. A continuation of Chemistry 30A, but dealing with the cyclic compounds. Discussion of carbohydrates is included, as well as an introduction to the chemistry of heterocyclic compounds. Three hours lecture, six hours laboratory. Spring semester. Five units.

34A. **Organic Chemistry.** A discussion of the principal compounds of an organic nature in the aliphatic series, together with a laboratory study of their principle properties. The role of organic chemistry in life processes briefly reviewed. Intended primarily for Pre-medical students. Three hours lecture, three hours laboratory. One semester. Four units.

34B. **Organic Chemistry.** A continuation of 34A, but dealing with cyclic compounds including carbohydrates. Introduction to heterocyclic compounds, medicines, etc. Three hours lecture, three hours laboratory. One semester. Four units.

34C. **Organic Chemistry.** A course covering the matter as presented in Chemistry 34B, but without laboratory. Three hours lecture. One semester. Three units.

54. **Physical Chemistry.** An elementary course reviewing those principles having important applications in the medical sciences. Intended for Pre-medical students. No laboratory Two hours lecture. One semester. Three units.

55. **Physical Chemical Measurements.** Exercises in the practice of physical chemical laboratory methods intended primarily for Pre-medical students. Prerequisites: Chemistry 14 and concurrent or previous enrollment in Chemistry 54. Three hours laboratory. One semester. One unit.

101-102. **Advanced Inorganic Chemistry.** Discussion of the Basic Atomic Structure, Valence, Radioactivity, Isotopes and Periodic Law. Consideration of several typical families in relations to the Periodic Classification. Preparation and properties of less common elements such as the Rare Earths and transuranium elements. Two lectures each semester. Four units.

103-104. **Inorganic Preparations.** Methods of purification of impure inorganic substances, preparation of inorganic compounds by high temperature, gas train and electrolytic methods. A course of advanced laboratory technique, to accompany Chemistry 101 and 102. Two three-hour laboratory periods per week. Credit hours to be arranged.

107. **Wet Assaying.** The application of standard chemical procedures to a systematic analysis of the composition of metalliferous ores and metallurgical products. This course is designed to conform to the requirements of students interested in metallurgical engineering. Prerequisite: Chemistry 3A and 3B. Six hours laboratory per week. One semester. Two units.

115. **Instrumental Analysis.** A consideration of the application of modern instruments to determinations commonly met with in industrial practice. Emphasis on analysis of foodstuffs. Prerequisites: Chemistry 30A, 30B, or 34A, 34B, Chemistry 10A, 10B, or 14. Six hours laboratory, including discussions. One semester. Two units.

132. **Heterocyclic Chemistry.** An intensive study of the preparation and reactions of the quinolines, isoquinolines, pyridines, as well as the oxygen and sulphur analogues. Discussion of liquid ammonia reactions and survey of the ammonia system. Metal salts of nitrogen heterocycles

and subsequent reactions. Prerequisites—Chemistry 30A and 30B. Two hours lecture. One semester. Two units.

133. Identification of Organic Compounds. A lecture and laboratory course dealing with the identification, classification and reactions of organic compounds. Prerequisite—Chemistry 30A and 30B; Chemistry 10A and 10B. Three units.

135. Theories of Organic Chemistry. A comprehensive study of the structure of organic compounds, including an evaluation of the present theories considered from an analysis of resonant structures. Discussion of mechanics of classical rearrangements and tautomeric equilibria. Selected topics in infra red absorption, technique as applicable to determination of composition. Prerequisites—Chemistry 30A and 30B. Two hours lecture. One semester. Two units.

150A. Physical Chemistry. A general course, primarily for students making chemistry their major subject, covering the laws and theories of chemical systems as applied to their equilibrium and energy relationships. Prerequisites—Chemistry 1A and 1B; Chemistry 10A and 10B; Chemistry 30A and 30B; one year of college physics, and a working knowledge of calculus. Three hours lecture. Fall semester. Three units.

150B. Physical Chemistry. A continuation of Chemistry 150A. Credit in Chemistry 150A, together with satisfactory preparation in physics and calculus. Three hours lecture. Spring semester. Three units.

150C. Physical Chemical Measurements. Exercises in the practice of physical chemical laboratory methods. Prerequisites—Chemistry 10A and 10B; one year of college physics; concurrent or previous enrollment in Chemistry 150B. Six hours laboratory. Two units.

152. Colloids. A course of lectures in colloid science with special emphasis on industrial applications. The lectures will be briefly descriptive. Prerequisites—one year of college chemistry and one year of college algebra. A knowledge of the fundamentals of organic chemistry is desirable, but not required. Two units.

160. Chemical Literature and Nomenclature. A consideration of primary and secondary sources of scientific work, including foreign journals and publications, books and library facilities. Methods of compiling bibliographies. A systematic study of accepted organic and inorganic nomenclature. One lecture per week. One unit

170. History of Chemistry. A course in the history of chemistry and the development of chemical theories. Role of Catholic scientists in the development of present day concepts of chemical changes. Lectures, library work and presentation of reports. One semester. Two units.

180. Methods of Research. Students majoring in chemistry are required to undertake work of research or other advanced laboratory work along lines not covered by the courses already listed, under the direction of any member of the teaching staff with whom arrangement is made. The results of this research are incorporated in their senior thesis. Credit hours to be arranged. Both semesters.

CIVIL ENGINEERING

6. Surveying. Theory, use and adjustment of tape, compass, level, transit and plane table. Land and city surveying. Topographic surveying and methods of computing areas. Two hours lecture. Two units.
Prerequisite: Trigonometry.

8. Summer School of Surveying. Field and office work. Practical problems in highway, railway and topographic surveying. Four weeks immediately following the second semester of the sophomore year. Fee $50.00

Prerequisite: C.E. 6 and C.E. 57. Four units.

57. Surveying Practice. Field methods in the use of the tape, compass, level and transit. Six hours field practice.

Prerequisite: To accompany C.E. 6. Two units.

58. Surveying Practice. Practice in solar and stellar observations for the determination of azimuth, latitude, longitude and time. Three hours field practice.

Prerequisite: C. E. 57. One unit.

109. Curves and Earthwork. Simple, compound, reverse and transition curves. Vertical curves. Earthwork and the mass diagram. Two hours lecture.

Prerequisite: C.E. 57. Two units.

110. Hydraulics. An advanced study of dams, spillways, open channel flow, hydraulic machinery and related hydraulic phenomena. To follow the course in Fluid Mechanics. Two hours lecture and three hours computation.

Prerequisite: G.E. 116. Three units

122B. Structures. Analytical study of framed trusses with fixed loads. The analysis of steel and timber beams, plate girders, steel roof trusses and industrial buildings. Three hours lecture.

Prerequisite: G.E. 16. Three units.

123A. Structures. Analysis of bridge trusses with dead, live, impact and lateral loads. Deflection of trusses and trusses with redundant members. Wind stress analysis of buildings. Continuous frames and secondary stresses. The moment distribution method of analysis. Three hours lecture.

Prerequisite: C.E. 122B. Three units.

124. Reinforced Concrete. Principles and practice of reinforced concrete as applied to beams, girders, floor slabs, columns and footings. Reinforced concrete structures. Four hours lecture.

Prerequisite: C.E. 123A. Four units.

126. Soil Mechanics. A study of the origin, composition, characteristics and structural properties of soils. Two hours lecture.

Prerequisite: G.E. 16 and G.E. 116. Two units.

131. Sanitary Engineering. Collection, purification and disposal of sewage. Sewage treatment works. A study of the source, quality and quantity of water necessary for a municipal supply. Works for the collection, purification and distribution of water. Three hours lecture.

Prerequisite: G.E. 116. Three units.

133. Sanitary Engineering. The design of sewerage systems and structures. Two hours lecture.

Prerequisite: C.E. 131. Two units.

142. Highway Engineering. Design, construction and maintenance of roads and pavements. Two hours lecture.

Prerequisite: Senior standing. Two units.

159. Curves and Earthwork Laboratory. Field practice in laying out simple, compound, reverse and transition curves. Three hours field practice.

Prerequisite: To accompany C.E. 109. One unit.

170A. Thesis. The investigation of some engineering problem and the writing of an acceptable thesis. Conference as required.
Prerequisite: Senior standing. One unit

170B. Thesis. Continuation of C. E. 170A.
Prerequisite: C. E. 170A. One unit.

171A. Graphic Problems. Graphic Solutions of static problems. Three hours lecture and drafting.
Prerequisite: G.E. 15 or to accompany G.E. 15. One unit.

172. Structural Design. The design of the roof truss and the supporting columns of a steel mill building. Shop drawing of the structure. Six hours lecture, computation and drafting.
Prerequisite: To accompany C.E. 122B. Two units.

173A. Structural Design. Design of columns, beams and girders. Design of a railway plate girder. Three hours lecture, computation and drafting.
Prerequisite. To accompany C.E. 123A. One unit.

174B. Structural Design: Analysis and design of small steel or concrete building frame. Design of concrete retaining wall. Six hours lecture, computation and drafting.
Prerequisite: To accompany C.E. 124. Two units

176. Soil Mechanics. Laboratory practice in the examination and testing of the physical properties of soils. Three hours laboratory.
Prerequisite: To accompany C. E. 126. One unit.

181. Sanitary Laboratory. Standard practice in the common tests of sanitary and industrial wastes and polluted and contaminated waters. Three hours laboratory.
Prerequisite: To accompany C. E. 131. One unit.

183. Sanitary Design. The design of sewerage systems and structures. Three hours computation and drafting.
Prerequisite: To accompany C. E. 133. One unit.

192. Highway Laboratory. Standard methods of testing bituminous materials and the geometric design of highways. Three hours laboratory.
Prerequisite: To accomapny C. E. 142. One unit.

ECONOMICS

Students who wish to make Economics their major subject must complete in the lower division Economics 1A and 1B with an average grade of at least C. **This course is a prerequisite for all upper division courses in Economics.** Students who have not fulfilled this requirement must receive special permission from the Chairman of the Department of Economics.

The major program must include not less than 24 units of upper division work in Economics, including Economics 100, 110, 114, 116, and 122.

An average of C must be maintained in all courses of the major, and at the end of the senior year each student must be ready to pass a comprehensive final examination.

In addition to the units in Economics, a major in this field must include 6 units in each of two related social study fields. In each of these courses he may not present less than a grade of C.

Students in the College of Business Administration should consult the programs listed in the section on the College of Business Administration to determine their requirements.

Lower Division Courses

The following courses are open to students in all departments of the University, subject to the indicated prerequisite, if any.

1A-1B. Principles of Economics. The student is made acquainted with the general principles, terminology and methods of analysis essential to an understanding of economic processes and problems. The work of the course centers around the four dominant phases of economics: consumption, production, exchange and distribution. Three hours lecture. Two semesters.
Prerequisite: Sophomore standing. Six units.

8. Economic Geography. Includes the study of the physical aspects of the earth as a planet, and the varied environments which it provides for the habitat of man. Different human economies and their relationships to the principal natural environments comprise a large part of the course. In addition, the cultural aspects of some phases of human existence are included, such as political geographical settlements, urban life, etc.
Two units.

Upper Division Courses

100. Principles of Statistical Method. The object of this course is twofold: Firstly, it presents the techniques of elementary statistical analysis as tools appropriate for the study of quantitative data. Secondly, it considers the logic of statistical induction and the inherent limitations imposed thereon by the nature of the data themselves. The subject matter includes averages, variation, elementary ideas of index numbers, simple linear correlation and elementary time series analysis. Three hours lecture, three hours laboratory.
Prerequisite: Mathematics D. Four units.

101. Statistical Analysis. Application of the methods of basic least squares with particular reference to the problems of multiple, partial, and curvilinear correlation. Special attention will be given to certain techniques appropriate to the solution of correlations involving time series. Three hours lecture. First semester. Four units.
Prerequisite: Economics 100

102. Statistical Analysis. The principles of statistical inference will be considered together with the problems of small samples, tests of significance, statistical estimation, contingency tables, and analysis of variance and covariance. Three hours lecture. Second semester.
Prerequisite: Economics 101. Four units.

110. History of Economic Doctrines. A survey of economic theories and doctrines from Plato to the present. The various types of theory are contrasted and compared and their relationship to the general economic and social history of the period indicated. Three hours lecture.
Three units

114. Economic Theory. An analysis of cost and price relationships in the individual firm and in the industry of which it is a part. The three special cases of pure competition, monopolistic competition, and monopoly will be discussed. Three hours lecture. Three units.

116. American Economic History. A study of the economic history of the United States, with special reference to problems arising from the factory system and large scale production. Three hours lecture.
Three units.

117. European Economic History. A study of the development of the economic aspects of civilization in medieval and modern times. Special attention is given to the evolution of economic institutions and the historical background of the economic problems of the present. Three hours lecture. Three units.

120. Public Finance and Taxation. A course devoted to the analysis of public expenditures and public revenues. In the case of expenditures, particular emphasis will be placed on the change in the qualitative nature of those expenditures by government and the effects of such changes on the private economy. The section of the course devoted to public revenues will consider taxes peculiar to the United States in such a way as to determine the ultimate bearers of the burden of those taxes. Three hours lecture.
Three units.

121. Corporation Finance. An introduction to the problems surrounding the procurement of funds needed for carrying on a modern business enterprise. Topics covered will include: financial organization of modern industry; the instruments of enterprise finance; promotion and sale of securities; financing of operations of the going-concern; problems of financing growth and expansion; financial readjustments. Three hours lecture. Three units.

122. Money and Banking. An analysis of the fundamental concepts of money. The discussion of money will be followed by an analysis of commercial banking principles. Emphasis will be placed upon the commercial bank as a "manufacturer of the means of payment." The discussion of commercial banking will, of necessity, entail consideration of the philosophy, technique and policy of central banking. Mindful of the fact that the United States possesses a monetary and banking system peculiar to itself, consideration will be given to "money of the United States," the National Banking System and the Federal Reserve System, whenever possible or necessary. Three hours lecture. Spring semester.
Three units.

124. Investments and Investment Institutions. As Corporation Finance deals with the problems of business management devising ways and means of procuring funds for enterprise operations, so this course will deal with the market for funds as viewed by those individuals and institutions who are offering those funds in that market. Therefore, among the subjects to be considered will be the nature of the money market; institutions operating therein; and because of the significance of the presence of government, government control thereof. It will be presumed that a student electing this course possesses a working knowledge of commercial and central bank operations and of the fundamentals of enterprise finance. Three hours lecture. Three units.

126. Business Cycles. An introduction to the analysis of fluctuations in the level of general business activity. Specific theoretical formulations explaining business cycles will be discussed. This will be followed by a discussion of the history of business fluctuations, the problem of control and the attainment of stability. Three hours lecture.
Prerequisite: Economics 100. Three units.

150. Labor Problems. Lectures and class discussion on (1) the problems: insecurity, wages and income, hours and work periods, sub-standard

workers, industrial autocracy; and (2) attempts to solve them: by employees, by employers, by government. Three hours lecture. Three units.

158. **Government and Business.** This course deals with the general problem of government regulation of business as exercised especially by the Federal authority. It analyzes the regulation of Trusts and Business Combines; Business Practices; Production; Labor; Agriculture; Public Utilities, and the like. It investigates the government's regulatory machinery and enters into an analysis of methods whereby competition is either restricted or encouraged, and other government's economic objectives are achieved.
Three hours lecture. One semester. Three units.

170. **Problems of American Agriculture.** Lectures and class discussion on such farm problems as Soil Conservation, Irrigation and Reclamation, Farm Credit, Price Supports, Foreign Trade and Agriculture, Migratory Labor, Family Farms. These and other problems will be viewed from the point of view both of the farm community and of general public policy. Three hours lecture. Fall semester. Three units.

171. **Problems of World Agriculture.** Lectures and class discussion on problems and problem areas of world agriculture, with emphasis on physical environment, population trends, land distribution and tenure, agricultural development and international trade in agricultural products. Special attention will be given to interrelationships between food, population, and resources; to the requirements of agricultural modernization; and to the particular problems of underdeveloped areas of the world. Three hours lecture. Spring semester. Three units.

180. **International Trade.** It is the purpose of this course to present the generally accepted results of the theoretical investigations of the past, and then to give the student the modern doctrine of the manner in which international adjustment to economic change occurs. The theories and operation of foreign exchange and its economic influence upon industry and trade will be considered in order that the student may be thoroughly acquainted with the analytical tools that are available for use in understanding the importance of government policy in international trade. Three hours lecture. Three units.

183. **Transportation.** An economic analysis of the principle forms of commercial transportation in the United States. The particular problems of rail, water, motor, air, and pipe line transportation are considered. Three hours lecture. Three units

190. **Research Technique.** Supervised work for the senior thesis. One unit.

EDUCATION

Courses in education at the University of Santa Clara are arranged to meet the programs of the various teacher training institutions of the State and the Credential requirements laid down by the State Department of Education. Students may take courses in education only after they have completed their sophomore year. Detailed advice regarding requirements for Credentials and graduate work in the field of education may be obtained from the Department of Education.

A-B. Prescribed Physical Training. Freshmen who are physically fit and who are ineligible for ROTC (see page 43) are required to meet two periods a week for physical training. Two hours each semester. One unit.

C-D. Prescribed Physical Training. Sophomores who are physically fit and who are ineligible for ROTC (see page 43) are required to meet two periods a week for physical training. Two hours each semester. One unit.

100. Principles and Philosophy of Education. A survey of the theories and general principles of education affecting present day procedures. Three hours. One semester. Three units.

101. History of Education. The development of educational thought beginning with the Greek and Roman periods to modern times. Embraces in particular the dominant phases of modern education; the influence of Greek and Medieval education on the systems prevalent today. Three hours. One semester. Three units.

102. Principles of Secondary Education. A complete survey of secondary education; particular emphasis on the functions, scope and curricula of secondary education in relation to present day social needs. Three hours. One semester
Prerequisite: Educ. 100 or 101. Three units.

103. Educational Psychology. A study of the mental development of man, mental testing; moral and religious development; general laws of learning. Three hours. One semester.
Prerequisite: Educ. 100 or 101. Three units.

104. Classroom Organization and Control. A basic course in the administration of the single classroom; sound theory in terms of common practice; consideration of the teacher's relationships with pupils, fellow teachers, the administration, and the community. Emphasis on self-control (discipline), guidance, and the youth's social adjustment and mental hygiene. Three hours. One semester.
Prerequisite: Educ. 100, 101, or 102. Three units.

105. Principles of Guidance. A survey of principles and their application to individuals and groups. Effort is made to demonstrate the application of such principles in conducting the class. Three hours. One semester.
Prerequisite: 101, 102, and 103. Three units.

106. Tests and Measurements. The purpose of measurement in education; standardized tests of intelligence and achievement; other means of evaluating learning. Three hours. One semester.
Prerequisite: Educ. 103. Three units.

109. Child Growth and Development. Physical, language, motor, and mental development of the child. Some attention to mental health; basic needs of the individual. Personality development in terms of correction and improvement. Three hours. One semester.
Three units.

***110. Ratio Studiorum.** An examination of the principles, methods and practices observed in the schools of the Society of Jesus, as embodied in the Ratio Studiorum. Comparison of these with current educational theory and practice. Two hours. One semester. Two units.

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*Given on Los Gatos Campus only.

ELECTRICAL ENGINEERING

120. Elementary Vacuum Tubes. Elements of electron ballistics, a study of the cathode ray tube, characteristics of high vacuum tubes, and simple single phase rectifier power supplies. Two hours lecture.
Prerequisite: E.E. 125. Two units.

121. Basic Electronics. Characteristics of gas filled tubes. Control circuits for gas filled tubes used in direct current and alternating current circuits. Polyphase rectifiers and filters. Study of amplifier circuits and the principal features of the more common types of oscillators and detectors. Three hours lecture.
Prerequisite: E.E. 120. Three units.

122. Advanced Electronics. Continuation of E.E. 121 to more fully develop features of oscillators and detectors. Study of amplitude-modulation, frequency-modulation, and pulse modulation systems. Introduces ultra-high frequency techniques and related circuits. Two hours lecture.
Prerequisite: E.E. 121 and E.E. 181. Two units.

125. Electric, Magnetic and Dielectric Circuits. A basic treatment of the fundamental engineering relationships applying to electric, magnetic and dielectric circuits. The phenomena treated underlie all phases of electrical engineering. Circuit principles are applied to polyphase alternating current circuits. Three hours lecture.
Prerequisites: Physics 8, 9, and 10, and Math. 3A, 3B, and 4A. Three units.

126. Electric Machines A study of the operating characteristics of direct current generators and motors, transformers, induction motor, synchronous motors and alternators and the single-phase motor. Principal features of these electrical devices are discussed in the light of fundamentals previously developed. Three hours lecture.
Prerequisite: E. E. 125. Three units.

127. Advanced Electric Circuits and Machines. Circuit fundamentals are applied to the study of single-phase alternating current circuits having non-sinusoidal voltages impressed upon them. Unbalanced polyphase loads are analyzed. Some features of direct current and alternating current machine behavior are developed more fully than in E. E. 126. Basic aspects of amplidyne generator operation and application are covered. Three hours lecture.
Prerequisites: E. E. 125, E. E. 126, and E. E. 173. Three units.

128 A, B, C. Advanced Alternating Current Machines. Continuation of E. E. 127 to include harmonic suppression in polyphase transformer banks, special connections of transformers, speed control of induction motors, power angle of alternators and synchronous motors, parallel operation of alternators, and special characteristics of single-phase motors.

128A Two hours lecture. Two units.
128B Three hours lecture. Three units.
128C Four hours lecture. Four units.
Prerequisite: E. E. 127.

135. Elements of Electrical Engineering. A course for Civil Engineering students dealing with the principles and applications of alter-

nating and direct current circuits and machines. Three hours lecture.
Prerequisites: Physics 8, 9, and 10 and Math. 3A, 3B, and 4A.
Three units.

138. Electric Circuit Transients. The behavior of electric circuits containing fixed circuit parameters, including some cases of coupled circuits, are analyzed by solution of the applicable differential equations. The solutions are discussed for their applications in electric power systems and in machines. Two hours lecture.
Prerequisites: E. E. 125 and Math. 121. Two units.

140. Symmetrical Components. The techniques of the mathematical method of symmetrical components for solution of unbalanced polyphase system problems are developed and applied to study of faults on transmission systems and to the behavior of polyphase machinery operating from unbalanced voltage sources. Two hours lecture.
Prerequisite: E. E. 127. Two units.

142 A, B. Electrical Illumination. Spectral characteristics of the more common types of electrical light sources are discussed and specification bases established. Problems are solved for the selection and position of lighting systems to provide specified levels of illumination. Wiring and control systems are developed for handling the electric lighting power in conformity with Underwriters Laboratories code.

142A Two hours lecture Two units.
142B Three hours lecture. Three units.
Prerequisite: E. E. 125.

144. Power Transmission Lines. The behavior of relatively long lines at power frequencies is analyzed. Power transmission limitations and circle diagrams are developed. Effects of power factor correction equipment on current and voltage distribution are treated. The characteristics of these lines that must be considered in carrier current communications and relaying systems are discussed. Two hours lecture.
Prerequisite: E. E. 127. Two units

146A, B. Ultra-High Frequency Techniques. Characteristics of tubes suitable for generating and amplifying ultra-high frequency power. Some limitations of U-H-F receivers. Principal features of transmission lines, wave guides and resonant cavities at these frequencies.

146A Two hours lecture. Two units.
146B Three hours lecture. Three units.

150. Introduction to Communications Circuits. Analytical treatment of the theory of coupled circuits, impedance matching networks, and communications filters. Two hours lecture.
Prerequisite: E.E. 125. Two units.

152. Advanced Communications Circuits. Treats of telephone and radio frequency transmission lines. A study of the more common types of antennae and the theory of radio propagation. Two hours lecture.
Prerequisite: E. E. 150. Two or three units.

170 A, B. Thesis. Investigation of an approved Electrical Engineering problem and preparation of suitable thesis covering the investigation. Conferences as required. Two units; may be offered both in either the first or second semesters of the Senior year or it may be offered one unit each semester.
Prerequisite: Senior standing in Electrical Engineering. Two units.

171A, B. **Electrical Design.** Design of Magnetic Circuits and associated Electric circuits in machines. Calculations of heat generation and dissipation rates in electrical apparatus. Selection of materials for desired electric, magnetic, dielectric and thermal behaviour.
Three hours lecture and computation per unit.
Prerequisite: E. E. 126. Two units.

172. **Power Generation and Distribution Problems.** Principles of engineering economy applied to selection of component equipment for power operation and utilization. Survey of typical capital and operating costs of steam and hydro-electric generating stations. Economic selection of conductor size. Division of load between available generating units and between available services. Location of load centers, power plant sites. Simple short circuit calculations on systems and applications of circuit breakers and relays for system protection. Six hours lecture and computation.
Prerequisite: E. E. 126. Two units.

173. **Electric Circuits and Machinery Laboratory.** Experimental study of basic circuit principles, operating characteristics of transformers, induction and synchronous motors, direct current generators and motors, and motor control principles. Six hours laboratory and computation.
Prerequisite: E.E. 125, to accompany E.E. 126. Two units.

177. **Advanced Electric Circuits and Machinery Laboratory.** Continuation of E. E. 173, to treat unbalanced polyphase loads, special tests on direct current machines, the amplidyne generator, and further study of alternating current machines. Three hours laboratory.
Prerequisite: To accompany E. E. 127. One unit.

178. **Advanced Alternating Current Machinery Laboratory.** Laboratory tests and computations on alternating current power equipment characteristics as treated in E. E. 128. Three hours laboratory.
Prerequisite: E. E. 177. One unit.

181. **Electronics Laboratory.** Experimental study of tube characteristics, rectifier circuits, thyratron control systems, cathode-ray oscillograph, some amplifiers and oscillators. Three hours laboratory.
Prerequisite: To accompany E. E. 121. One unit

182. **Advanced Electronics Laboratory.** Continuation of E. E. 181 to include feedback amplifiers, radio-frequency voltage and power amplifiers, modulation systems, and detector characteristics. Three hours laboratory.
Prerequisite: To accompany E. E. 122. One unit.

185. **Elements of Electrical Engineering Laboratory.** Experimental study of some simple direct current and alternating current circuits, and tests to demonstrate operating characteristics of alternating and direct current apparatus. Three hours.
Prerequisite: To accompany E.E. 135. One unit.

188. **Electric Transients Laboratory.** Experimental verification, using the electromagnetic oscillograph, of transient behavior of circuits as treated in E. E. 138. Three hours laboratory.
Prerequisite: To accompany E. E. 138. One unit.

ENGLISH

Students who wish to make English their major subject must complete English 1A-1B, 46A-46B, 51 and 52 with at least a grade of C.

The major program must also include 24 units of upper division English courses. English 103 and 105 are required, and two of the following: English 113, 114, 115 and 116. English majors planning graduate work or teaching as a profession should inform their English adviser early in their course. An average grade of C must be maintained in all courses of the major, and, at the end of the senior year, each student must pass a comprehensive final examination.

Subject A. A writing course for those who fail to pass composition placement tests. The course is given concurrently with English 1A and 1B. Two hours until the course is passed. No credit.

1A-1B. First Year Composition and Literature. Instruction and practice in good expository, narrative, descriptive, and argumentative writing, together with readings and analysis of these types of literature. Expository writing is stressed in the first semester, together with academic form and the use of the university library. Three hours. Two semesters. Six units.

14. Technical English. A study of clear, precise statements such as are used in specifications, contracts, and engineering reports.
Prerequisite: Sophomore standing in Engineering. Two units.

46A-46B. Survey of English Literature. History of the literature and readings: A. From the beginnings to the decline of Neo-Classicism; B. From the pre-Romantic period to the present. Six units.

51. Advanced Composition. Integration of the five kinds of writing, with emphasis on argumentation and persuasion. Principles of critical expository writing. Reading and analysis of various types of literature with emphasis on emotion and imagination in literature of power. Three hours. One semester. Three units.

52. Principles of Poetry. An introduction to the study of poetry, its nature, and kinds. Practice in the composition of verse and in critical analyses of poems. Three hours. One semester. Three units.

53A-53B. Journalism. Instruction and laboratory work in managing, editing and writing for journals or newspapers. Two units.

54A. Journalism Workshop. Continuation of 53A-53B. Practice and laboratory work in conjunction with publication of the student newspaper, The Santa Clara, a pre-requisite. Units by arrangement.

103. Shakespeare. An intensive study of selected plays, with other plays assigned for more rapid reading, and an introduction to Shakespearean criticism and scholarship. (Required of all English majors.) Three hours. One semester. Three units.

104. Milton. His background and spirit. Contrast with Dante, Virgil and Homer. Selections from his prose. His principal minor poems. Comus. Paradise Lost. Three hours. One semester. Three units.

105. Chaucer. A study of Chaucer's life and writings which includes reading, in the Middle English language, of selections from the Canterbury Tales and other poems. Three hours. One semester. Three units.

106. Literary Criticism. Representative critical theories from Plato to the present, and their application to specific literary works. Three hours. One semester. Three units.

107. **Comparative Literature.** Reading of ancient, mediaeval, and modern classics in English translations. Lectures on the authors and masterpieces of various nations and periods of history, emphasizing their relations to English and American literature. Three hours. One semester. Three units.

108A-108B. American Literature. History of the literature and readings. A. From the beginning of 1860; B. From 1860 to the present. 108A is not a prerequisite to 108B. Six hours. Two semesters. Six units.

109. **Browning.** Dramatic lyrics; dramatic romances; the dramatic monologue; Pippa Passes; The Ring and the Book. Three hours lecture. Three units.

110. **Shakespeare.** An extensive reading course in the plays of Shakespeare. A rapid survey of the poet's dramatic work. (For students not majoring in English.) Lectures and assigned readings. Three units.

112. **The English Drama.** A survey of the English drama from the liturgical period to the end of the Victorian period. Three hours. One semester. Three units.

113. **The Renaissance Period.** A study of the literature of the English Renaissance (1485-1660). Three hours. One semester. Three units.

114. **The Neo-Classical Period.** A study of neo-classical and pre-romantic literature in England (1660-1798). Three hours. One semester. Three units.

115. **The Romantic Period.** A study of the literature of England during the Age of Romanticism (1798-1832). Three hours. One semester. Three units.

116. **The Victorian Period.** A study of the literature of the Victorian Age (1832-1901). Three hours. One semester. Three units.

*117. Creative Writing. A workshop course in the technique of writing current types of imaginative prose. Three hours. One semester. Three units.

*118. Oratory. Principles of oratorical art; reading and analysis of great speeches of Western Literature; consideration of the problems and practice of modern oratory; exercises in composition. Three units.

119. **Modern English Literature.** A study of the literature of England since the Victorian Age. Three hours. One semester. Three units.

120. The Novel. A critical and historical study of the British and American novel. Three hours. One semester. Three units.

121. **The Short Story.** A critical and historical study of the short story, supplemented by story-writing assignments. Three hours. One semester. Three units.

FRENCH

1. **Elementary French.** In this course the student is carefully drilled in elementary grammar up to the irregular verbs, attention also being given to acquiring a vocabulary of the more common words. Three hours. Fall semester. Three units.

2. **Elementary French.** A continuation of French 1. Special attention is given to the more important irregular verbs, the memorizing of

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*Given only on the Los Gatos campus.

words, and translation of French into English and vice versa. Three hours. Spring semester. Three units.

3. **Intermediate French.** A thorough review of grammar and syntax. The object of this course is to acquaint the student with the general vocabulary and enable him to read the more simple French writers. Three hours. Fall semester.

Prerequisite: French 2. Three units.

4. **Intermediate French.** This course continues the work begun in French 3. Regular exercises are given in written work, and copious reading is made from the standard works in order to fit the student for professional reading. Three hours. Spring semester. Three units.

5-6. **Advanced Composition and Reading.** Compositions and sight reading; oral and written reports in French; conversation; survey of French literature. This course is conducted almost entirely in French. Three hours. Both semesters. Six units.

101-102. **Survey of French Literature.** Three hours each semester. Six units.

GENERAL ENGINEERING

1. **Engineering Drawing.** Lettering. Use of instruments. Orthographic projection. Isometric drawing. Oblique drawings. Single auxiliary views. Sections and convention. Fasteners. Dimensioning. A.S.A. Drafting room standards. Six hours lecture and drafting. Two units.

2. **Engineering Drawing.** Theory of projection. Auxiliary views. Revolution. Point, line and plane problems. Development of surfaces. Intersections. Dimensioning and working drawings. Lettering. Drafting room standards. Six hours lecture and drafting.

Prerequisite: G. E. 1. Two units.

7. **Orientation.** Lectures and assigned reading on How to Study, Definitions of engineering, kinds of engineering, biographies, slide rule and problems. One hour lecture. One unit.

15. **Mechanics.** (Statics of Rigid Bodies). Resultants of force systems. Equilibrium of force systems. Graphical and algebraic solutions of forces acting on trusses and other structures. Friction. Three hours lecture.

Prerequisite: To accompany Math. 4A. Three units.

16. **Mechanics.** (Strength of Materials). Physical properties of materials. Strength of machine and structural members. Deformation of machine and structural members under load. Four hours lecture.

Prerequisite: G.E. 15. To accompany Math. 4B. Four units.

66. **Materials Laboratory.** Experimental study of the physical properties of engineering materials. Laboratory technique in accordance with A. S. T. M. testing methods. Three hours laboratory.

Prerequisite: To accompany G. E. 16. One unit.

108. **Seminar.** Reading and reports from current Engineering literature. Effective delivery of reports. One hour lecture and reports. Second semester.

Prerequisite: Senior standing. One unit.

115. **Mechanics.** (Dynamics of Rigid Bodies). Displacement. Velocity. Acceleration. Force. Mass. The work-energy relationship. The impulse-momentum relationship. Two hours lecture. Three hours laboratory.

Prerequisite: G. E. 16. Three units.

116. **Mechanics.** (Mechanics of Fluids). Properties of Fluids. Fluid statics. Kinematics of Fluid Flow. The Energy Equation for Steady Flow. Dimensional Analysis. Flow of Fluids in Pipes. Momentum. Lift and Drag coefficients. Compressible Gas Dynamics. Open Channel flow. Hydraulic Machinery. Two hours lecture.
Prerequisite: G. E. 115. Two units.

117. **Materials and Processes of Construction.** The manufacture, properties and use of modern materials of engineering construction. Two hours lecture. Two units.

121. **Engineering Economics.** Definition of economics. Basic concepts. Business units. Money and money systems. Investments. Labor relations. The economics of collectivism. Engineering economy studies. Present worth. Capitalized cost. Depreciation. Engineering reports and budgets. Contracts and specifications. Three lecture hours.
Three units.

122. **Engineering Economics.** Continuation of G. E. 121. Three hours lecture.
Prerequisite: G. E. 121. Three units.

126. **Engineering Review.** Review of the fundamental concepts and laws of mathematics and of the engineering sciences with practice in their application. Three hours lecture and computation. Second semester.
Prerequisite: Senior standing. One unit.

166. **Fluids Laboratory.** Experimental study of the pressure, flow and energy of fluids. Laboratory techniques in the use of orifice meters, Venturi meters, and other metering devices. Three hours laboratory.
Prerequisite: To accompany G. E. 116. One unit.

GEOLOGY

1. **General Geology.** A popular course of visual instruction to give the student an intelligent appreciation of the physiographic relief features of the earth and an insight into the probable conditions of the origin and formation of various geologic phenomena. Lectures, stereopticon projections, and supervised discussion. Two hours. Two units.

2. **Historical Geology.** Visual instruction regarding theories of earth formation. Paleontology. Special study of fossils with access to large museum. Lectures on geologic aspects of evolution. Two hours.
Two units.

34. **Mineralogy.** A course in Mineralogy with access to a large collection of specimens. Determination of unlabeled specimens. Crystallography. Blowpipe analysis. Includes a short course in Metallurgy. Iron ores and production of iron and steel. Percentage and effect of sulphur, silicon manganese and carbon in iron and steel. Coals, coke, carbons and ash. Two hours lecture.
Prerequisite: Geology 1. Two units.

101. **Engineering Geology.** The study of geology as it applies to the engineer in preliminary and exploration work for foundations of dams, bridges and buildings. Materials suitable for engineering structures. Erosion and silting of surface waters. Structural features of the earth's crust. Laboratory work with the common minerals and rocks of concern to the engineer, also their identification. Two hours lecture, three hours laboratory. Three units.

GERMAN

1. **Elementary German.** Elements of German grammar. Drill in pronunciation. Vocabulary. Three hours. Fall semester. Three units.

2. **Elementary German.** A continuation of German 1. Syntax. Oral and written exercises. Reading from more simple German prose. Three hours. Spring semester. Three units.

3. **Intermediate German.** Review of syntax. Translation. Oral and written exercises. Reading of somewhat difficult German prose. Three hours. Fall semester.
Prerequisite: German 2. Three units.

4. **Intermediate German.** Reading, written and oral exercises. This course aims at preparing the student to read the more difficult German writers. Three hours. Spring semester.
Prerequisite: German 3. Three units.

5-6. **Advanced Composition and Reading.** Composition; sight reading; oral and written reports in German; conversation; historical survey of German literature. This course is conducted almost entirely in German. Three hours. Both semesters. Six units.

100. **Essential Aspects of German Literature.** Three hours. One semester. Three units.

GREEK

1. **Elementary Greek.** Inflections, Word Formation, and Syntax. Complementary exercises in composition. Three hours. One semester. Three units.

2. **Elementary Greek.** A continuation of Greek 1. Selected reading. Complementary exercises in composition. Three hours. One semester. Three units.

*3. **Greek Prose.** Select reading from Lysias and Isocrates. Complementary exercises in composition. Three hours. One semester. Three units.

5. **Demosthenes.** Selected reading. Three hours. One semester. Three units.

7. **A Study of Selected Greek Lyrics.** Three hours. One semester. Three units.

9. **Plato.** Selected readings. Three hours. One semester. Three units.

11. **Homer.** Selected reading from the Iliad and/or Odyssey. Three hours. One semester. Three units.

*12. **Sophocles.** One play. Three hours. One seemster. Three units.

*13. **Biblical Greek.** Selected reading from the New Testament. Three hours. One semester. Three units.

*14 **Patristic Prose.** Eelected reading from St. John Chrysostom and St. Basil. Three hours. One semester. Three units.

19. **Special Reading Course.** May be repeated for credit. Units by arrangement.

20. **Homer. Illiad.** Rapid reading of the entire work, together with a study of Homer's poetic art and of the life and civilization of the Bronze Age. Normally 20 and 21 will be given in the same year. Three hours. One semester. Three units.

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*These courses usually are given on the Los Gatos Campus.

21. **Homer. Odessy.** Rapid readings of the entire work. See Greek 20 above. Three hours. One semester. Three units.

*101. **Survey of Greek Literature.** Epic, lyric, drama and prose. Lectures, with selected reading. Three hours. One semester. Three units.

101T. **Survey of Greek Literature.** Same as preceding. All readings, however, in translation. Two hours. One semester. Two units

*102. **Greek Historians.** Herodotus and Thucydides (selections). Three hours. One semester. Three units.

*103. **Greek Drama.** Sophocles; Antigone or Oedipus Tyrannus; one play of Aeschylus, Euripides or Aristophanes. Three hours. One semester. Three units

*108. **Greek Oratory.** Demosthenes: Olynthiacs, Philippics. and Crown Speech (selections). Three hours. One semester. Three units

*109. **Pindar.** Odes. Three hours. One semester. Three units.

*110. **Greek Composition.** Exercises in connected discourse, based on Demosthenes and/or Plato. Two hours. One semester. Two units.

*111. **Special Reading Course.** Units by arrangement.

HISTORY

Students who wish to make History their major subject, besides completing the other required courses of the lower division, must pass the courses in History 2A-2B, Political Science 1-2. At a time to be chosen by the student an additional six unit course in either Economics or Sociology with at least a grade of C.

The major program must include 24 units of upper division work in History. History 101 is required. An average grade of C must be maintained in all courses of the major and at the end of the senior year each student must pass a comprehensive final examination.

1A-1B. Survey of Western Civilization. A background course sketching in broad outline the principal historical factors forming our European culture. Required readings. Three hours. Two semesters. Two units.

2A-2B. History of Western Civilization. A general survey of western culture from its beginnings to the present, emphasizing those institutions which have shaped our modern civilization. Three hours. Two semesters. Six units.

4A-4B. History of Modern Europe. A survey of European developments from the fifteenth century to the present. The emergence of national states. The French and Industrial Revolutions and their impact upon European life. The two world wars and their aftermath. Three hours. Two semesters. Six units.

101. Introduction to Historical Methods and Bibliography. Prescribed in the junior year for, and restricted to, students majoring in History. Two papers and a bibliography are prepared by each student; and the use of the library is emphasized. Three hours. One semester. Three units.

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*These courses usually are given only on the Los Gatos Campus.

111A-111B. Ancient History. The ancient civilizations of the the near east. Greek history to the Roman conquest. The history of Rome from its beginning to Constantine. Three hours. Two semesters. Six units.

121A-121B. Medieval History. A general survey of the Middle Ages from the fourth to the fifteenth century. Three hours. Two semesters. Six units.

131A. The Renaissance and Reformation. A critical study of the revival of the old and the birth of new learning. The Protestant Revolt and the Catholic Counter Reformation. Three hours. One semester. Three units.

131B. The Seventeenth and Eighteenth Centuries. The rise of absolute monarchs. The struggle for European preeminence and world empire. The Benevolent Despots. Three hours. One semster. Three units.

135. The History of Russia. Cultural, political and economic development of Russia from the rise of the Romanovs to the present. Three hours. One semester. Three units.

145. The Nineteenth Century. A study of the revolutionary movements in Europe stemming from the French and Industrial Revolutions. The rise of the middle classes and the struggle for liberal constitutional government. Underlying social unrest. Three hours. One semester. Three units.

146. The Twentieth Century. The intensification of national and imperial rivalries in Europe, culminating in universal wars. Social upheavals and their effects. Attempts at world organization to enforce peace. Three hours. One semester. Three units.

151. History of England. The growth of the English state and Constitution. Expansion of British power. Britain's role in European and world conflict. Political and social developments with special emphasis on the modern period. Three hours. One semester. Three units.

155. The British Commonwealth and Empire. The first mercantile empire in America and the Indies. The later empire after 1783. The rise of the free dominions. Imperial problems in India, the near east and Africa. Three hours. One semester. Three units.

161A-161B. History of the Americas. The aboriginal world. The course of exploration and conquest. The colonial systems. The revolutions in North and South America. Organization of the new self-governing nations. Inter-American relations. The Monroe Doctrine, Pan-Americanism and the Good Neighbor Policy. Three hours. Two semesters. Six units.

171A-171B. History of the United States. A general course sketching the chief factors in our national development. Colonial beginnings. The Revolution. The Constitution. Political history of the United States. Three hours. Two semesters. Six units.

191. The Far East. A general history of the East Asiatic nations, with emphasis on the recent period. Three hours. One semester. Three units.

198. Research Techniques. Supervised work for the senior thesis. One unit.

ITALIAN

1. **Elementary Italian.** Elements of Italian Grammar. Drill in Pronunciation. Vocabulary. Three hours. Fall semester. Three units.

2. **Elementary Italian.** A continuation of Italian 1. Syntax; oral and written exercises. Reading from simpler Italian prose. Three hours. Spring semester. Three units.

3. **Intermediate Italian.** Review of grammar and syntax. Translation. Oral and written exercises. Reading of somewhat difficult Italian prose. Three hours. Fall semester.
Prerequisite: Italian 2. Three units.

4. **Intermediate Italian.** Reading, written and oral exercises. This course aims at preparing the student to read the more difficult Italian writers. Three hours. Spring semester.
Prerequisite: Italian 3. Three units.

5-6. **Italian Literature.** A study of special periods and writers in Italian literature with emphasis on their literary qualities. The development of fluency in Italian composition and pronunciation. An easy reading, writing and conversational knowledge of Italian is presumed. Three hours. Both semesters.
Prerequisite: Italian 4. Six units.

LATIN

1-2. **Elementary Latin.** Beginning Latin courses for students who have had no previous study in Latin. These courses are equivalent to the first two years of high school Latin. Three hours. Two semesters. Six units.

3-4. **Intermediate Latin.** Courses equivalent to the last two years of high school. Three hours. Two semesters. Six units.

*5-6. **Ecclesiastical Latin.** Selections from ecclesiastical writers, ancient and modern. Three hours. Two semesters. Six units.

*7A-7B. **Latin Prose Composition.** Two hours. Two semesters. Four units.

9. **Latin Prose.** Selected readings from Nepos, Pliny's letters, Eutropius, Florus, the Church Fathers, and medieval Latin. Three hours. One semester. Three units.

10. **Cicero.** Selected speeches. Three hours. One semester. Three units.

11. **Vergil.** Selections from the Aeneid. Three hours. One semester. Three units.

12. **Latin Historians.** Selections from Caesar, Sallust, Nepos, Livy and Tacitus. Three hours. One semester. Three units.

13. **Lyric and Elegiac Poets.** Selections from Catullus, Tibullus, Propertius and Ovid. Three hours. One semester. Three units.

14. **Cicero.** Essays. De Amicitia, De Senectute, and parts of De Natura Deorum. Three hours. One semester. Three units.

15. **Horace.** Odes and Epodes. Selections. Three hours. One Semester. Three units.

*18A-18B. **Latin Conversation.** Practice in the fundamentals of oral Latin. Daily conversation. Oral examination. Two hours. Two semesters. Four units.

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*Courses usually given only on the Los Gatos Campus.

19. Selected readings adapted to the needs of the individual. Hours and units by arrangement.

*101. **Latin Comedy.** Plautus and Terence. One play of each. Three hours. One semester. Three units.

*104. **Vergil.** Eclogues and Georgics. Three hours. One semester. Three units.

*107. **Horace.** Satires, Epistles, and Ars Poetica. Two hours. One semester. Two units.

*108. **Horace.** Selected Odes and Epodes. Three hours. One semester. Three units.

109. **Lucretius.** De Rerum Natura. Three hours. One semester. Three units.

*110. **Cicero.** Rhetorical study of selected speeches. Three hours. One semester. Three units.

*114. **Survey of Latin Literature.** Lectures on the development of Latin literature, with assigned readings in selected authors. Three hours. One semester. Three units.

114T. **Survey of Latin Literature.** Same as preceding. All readings, however, done in translation. Two hours. One semester. Two units.

*116A-116B. **Advanced Prose Composition.** Two hours. Two semesters. Four units.

*119. **Special Reading Course.** Units by arrangement.

LAW

Professional Courses

First Year

101. **Jurisprudence.** Law and legislative enactment. The nature of law as proceeding from the true authority. The rule of law as opposed to the arbitrary rule of men. Interpretation of law according to the canons of true morality. Special moral obligations of those engaged in the practice of law as advocate or judge. Two units.

102. **Legal Ethics.** Standards of practice required by the State Bar of California, the Santa Clara County Bar Association, the American Bar Association, and certain fee schedules. Two units.

103. **Legal Method and Analysis.** A course designed to assist beginning law students by explaining to them what they are supposed to learn in law school, how to prepare for class, how to recite in class and how to write examination answers. The nature of the judicial process; stare decisis; restatements of law; place of legislation in the judicial process; jurisdiction; judicial structure of Federal and State Courts. Two units.

104. **Legal Research.** Law books and their use. One unit.

105. **Contracts.** Offer and acceptance, consideration, assignments, joint contracts, joint and several contracts, conditions, third party beneficiary contracts, Statute of Frauds, excuses for non-performance, impossibility, mistake, illegality, damages for breach, remedies, recission, restitution, quasi-contracts. Six units.

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*These courses usually are given only on the Los Gatos Campus.

106. Criminal Law and Procedure. Jurisdiction, precedure, elements of criminal liability, various crimes, criminal intent, malice, defenses. Three units.

109. Property I. Ownership, legal title, possession, fixtures, emblements, bailments, gifts, carriers. Introduction to Real Property; theory of Estates; rights in land; adverse possession; titles and conveyancing. Six units

112. Torts. Intentional invasions; negligence; strict liability; defamation; causation; defenses. Six units.

203. California Practice. Jurisdiction of California Courts, venue; summons; statute of limitations; trial procedure; dismissal or non-suit; directed verdict; verdict; judgments; motion for new trial; writs. Three units.

204. Code Procedure. Nature of the Civil Action under the Code; parties; complaint; demurrer; answer; cross-complaint; reply; demurrers to pleadings subsequent to complaint. Three units.

Second Year

113. Equity. Origin and nature of equity jurisdiction, jurisdiction in personam and in rem, extra-territorial effects of equity decrees, specific reparation for torts and specific performance of contracts, injunctive relief, nature of so-called equitable defenses, bills of interpleader, bills to quiet title, mutuality of performance and remedy, equitable conversion, equitable servitude. Six units

207. Constitutional Law. Judicial review, limitations on judicial review, powers of the Federal Government, separation of powers, division of powers, state powers, constitutional limitations. Six units.

215. Negotiable Instruments. Factors of negotiability, delivery, negotiation, holders in due course, defenses, special problems, Uniform Negotiable Instrument Law. Three units.

217. Corporations and Other Business Associations. Corporate entity, de facto corporations, rights of stockholders, relation of directors, ultra vires, capital structure, charters and amendment; Partnerships, general and limited; Business trusts; Sole proprietorships. Six units.

218. Property II. Future interests, rule against remoteness of vesting, Shelley's Case, Doctrine of Worthier Title. Three units.

222. Wills and Administration. Probate, distribution of estates, requisites of a valid will, execution, revocation and alteration, legacies. Three units.

225. Domestic Relations. Husband and wife, marriage, annulment, divorce, support, alimony; Parent and Child, duties, divorce problems, custody, support, adoptions; Pleading and Decrees; Property Settlement Agreements. Three units.

Third Year

206. Conflict of Law. Jurisdiction, domicile, full-faith and credit, divorce and other types of actions, special problems. Three units.

211. Evidence. Judicial notice, burden of proof and presumptions, relevancy, hearsay and exceptions, documentary evidence, testimonial evidence, res gestae, admissions and confessions, opinion, Model Code of Evidence, California modifications. Six units.

219. Sales and Agency. The Uniform Sales Act, principles of agency. (Primarily lecture) Two units.

220. **Trusts.** Nature, creation and elements of a trust; transfer of beneficiary's interest; spendthrift trusts; administration; termination and modification; charitable trusts; resulting and constructive trusts. Three units.

224. **Suretyship and Mortgages.** Security transactions in real and personal property. (Primarily lecture) Three units.

227. **Taxation.** Federal Estate and Gift; State Inheritance; Federal Income; State Income. Six units.

228. **The Revised Internal Revenue Code.** An emphasis in comparison of the old and new Internal Revenue Code. The purpose is to acquaint the student with the 1953 revisions of the I. R. C. Three units.

230. **Community Property.** Initiation of marital community, de facto spouse doctrine, community and separate property, liability of the community, management, dissolution, transfer. Three units.

Elective Courses

These courses are given periodically when the demand arises and are classified as elective courses.

231. **Estate Planning.** A practical course in lifetime and testamentary planning for the ordering and distribution of the client's property in a manner designed to achieve his legitimate objectives, avoid estate shrinkage through lack of liquidity, and avoid unnecessary taxes. The course consists of lectures and problems in planning and drafting, and is open to seniors only. Two units.

232. **Labor Law.** History and organization of unions; background of American labor law; unionization and collective action; strikes; picketing; boycotts; labor relations statutes; NLRA; Taft-Hartley Act; collective bargaining. Open to second year and senior students only. Two units.

233. **Administrative Law.** Introduction, efficiency, and expediency vs. formal due process in the traditional judicial sense; separation of powers, orientation of administrative law in relation to the three traditional branches of government, delegation of power, notice of action, power of agencies to employ penalties as sanctions for violations of laws, regulations, adequacy of notice, essential of a fair hearing, right to counsel, evidence, cross-examination, judge as party. Seniors. Two units.

234. **Contemporary Legal Problems.** This course is designed to introduce law students to important contemporary legal problems which fall outside the scope of the traditional law school curriculum. It is conducted on a mixed seminar-lecture basis. Seniors. Two units.

235. **Municipal Law and Legislation.** An introduction to local government, city and county ordinances, local administrative procedure; an introduction to public law generally, the place of legislation in the legal order, organization and function of the legislature, legislative research, drafting and interpretation of statutes. Second year and Seniors. Two units.

MATHEMATICS

This group of courses will be discontinued after June, 1955.

1. **Algebra.** Review of the fundamental operations; exponents; linear and quadratic equations; logarithms; progressions; the binomial theorem. Three hours. One semester. Three units.

1H. College Algebra. Review and practice in general ideas and applications of algebra and trigonometry. Methods of proof and scientific procedure as exemplified in these subjects. Course is designed for students with special facility for mathematics. Three hours. One semester. Three units.

2. Trigonometry. The generalized definitions of the trigonometric functions for any angle; inverse functions; functions of the sum and difference of two angles; of multiple angles; of half angles; trigonometric identities and equations; graphs of the trigonometric functions; solution of right and oblique triangles. Three hours. One semester.
Prerequisite: Math. 1. Three units.

41. Analytic Geometry. Review of intermediate algebra and plane trigonometry. Plane analytic geometry. An introduction to solid analytic geometry. Four hours lecture, one hour review. Four units.
Prerequisite: Two years high school algebra, one half year plane trigonometry or Mathematics 1 and 2.

42. Differential Calculus. Basic concepts of variables, function, limits. Derivatives, differentials, and their applications. Parametric equations, polar equations and roots. Theorem of the Mean and its applications.
Prerequisite: Mathematics 41. Three units.

This group of courses will be given after June, 1955.

C. Algebra. Review of the fundamental operations; exponents; linear and quadratic equations; logarithms; progressions; the binomial theorem. Three hours. One semester. Three units.
Prerequisite: One year of high school Algebra and one year Plane Geometry.

D. Trigonometry. The generalized definitions of the trigonometric functions for any angle; inverse functions; functions of the sum and difference of two angles; of multiple angles; of half angles; trigonometric identities and equations; graphs of the trigonometric functions; solution of right and oblique triangles. Three hours. One semester. Three units.
Prerequisite: Mathematics C or equivalent.

1. Algebra and Trigonometry. Designed to give students majoring in the physical sciences, engineering and mathematics a thorough review of Algebra and trigonometry; algebraic operations, algebraic equations and graphical representation. Progressions, binomial theorem, determinants, trigonometric functions and applications, graphs of trigonometric functions, identities and equations. Applications. Five hours per week. Four recitations and one hour review or quiz. Three units.
Prerequisite: High school courses — two years Algebra, one year Plane Geometry, one half year Trigonometry. (One half year Solid Geometry recommended.)

NOTE: At end of two weeks review of Algera and Trigonometry, those students who successfully pass a test in Algebra and a test in Trigonometry will be admitted to Mathematics 3A.

(Mathematics 3A, 3B, 4A, and 4B are integrated courses in Analytic Geometry and Calculus required of all students majoring in the physical sciences, engineering and mathematics, and are recommended for all qualified students interested in preparing for the many fields of knowledge that require the disciplines provided for in these courses in Mathematics.)

3A. Analytic Geometry and Calculus. Basic concepts of linear analytic geometry, graphs of functions, special loci, basic concepts of cal-

culus, the differentiation and integration of algebraic functions with applications. Three hours lecture. One hour review. Three units.

Prerequisite: High school courses — two years Algebra, one year Plane Geometry, one half year Trigonometry, and qualifying examination. See note to Mathematics 1 above.

3B. Analytic Geometry and Calculus. The integral as limit of a sum with application to areas, approximate integration, volumes, moments, centroids, pressure and work. Polar co-ordinates, conic sections, differentiation of trigonometric functions, logarithmic and exponential functions. Applications. Three hours lecture. Three units.

Prerequisite: Mathematics 3A.

4A. Analytic Geometry and Calculus. Hyperbolic functions, vectors, law of the mean, interdeterminate forms, formal integration, analytic geometry of surfaces, lines and planes in three dimensional space. Partial derivatives, miscellaneous applications. Three hours lecture.

Prerequisite: Mathematics 3B.

4B. Analytic Geometry and Calculus. Applications to the geometry of space, using different co-ordinate systems, multiple integral and triple integrals with applications. Infinite series, and expansion in series. Introduction to ordinary diff-equations. Three hours lecture.

Prerequisite: Mathematics 4A. Three units.

8. College Algebra. Advanced topics in Algebra. Determinants, theory of equations, permutations and combinations, probability. Topics in modern Algebra. Offered when demand warrants. Three hours lecture.

Prerequisite: Mathematics 1 and Mathematics 3A. Three units.

15. Algebra. Review of Intermediate Algebra for students majoring in Business Administration. Fundamental operations, equations, simple interest and discount. Progressions, logarithms, binomial theorem, probability and elements of statistics. Graphs. Three hours lecture.

Three units

16. Mathematics of Finance. Compound Interest Law with applications. Nominal and effective rates of interest. Annuities. Amortization, sinking funds, bond valuations. Introduction to Mathematics of Life Insurance. Three hours lecture. Three units.

Prerequisite: Mathematics 15 or equivalent.

43. Integral Calculus. Integration of elementary forms; the definite integral. Integration as a process of summation. Formal integration by various devices. Centroids, fluid pressure, and other applications. Three hours lecture.

Prerequisite: Mathematics 42. Three units.

44. Integral Calculus. Expansion of functions. Applications of partial differentiation and multiple integrals. Three hours lecture.

Prerequisite: Mathematics 43. Three units.

121. Differential Equations. Ordinary differential equations and their application. Hyperbolic function. Three hours lecture.

Prerequisite: Mathematics 4B or Mathematics 44. Three units.

122. Advanced Calculus. Elliptic integrals. Infinite series. Fourier series, Bessel functions, and their applications. Three hours lecture.

Prerequisite: Mathematics 121. Three units.

141. Engineering Applications. Differential equations of structures, heat transfer, circuits, and vibrations. Three hours. One semester.

Prerequisite. Mathematics 121. Three units.

MECHANICAL ENGINEERING

11. Shopwork. Manufacturing processes. Machine tools. Arc and oxy-acetylene welding. Foundry. Electric wiring. Molding of plastics. Economic and scientific fabrication of parts. These processes are all performed by students and this experience is supplemented by visits to commercial shops and by moving pictures showing manufacturing processes. Three hours lecture, shop work and inspection trips. One unit.

12. Shopwork. A continuation of M. E. 11. Three hours lecture, shop work and inspection trips.
Prerequisite: M. E. 11. One unit.

15. Mechanical Engineering Laboratory. Experimental study of such measuring devices as tachometers, pyrometers, dynamometers, calorimeters, and planimeters. Experimental measurement of such engineering values as the heating value of fuels and efficiency of engines by using these devices. One hour lecture and three hours laboratory.
Prerequisite: To accompany Physics 9. Two units.

118. Machine Design. A study of displacement, velocities, and accelerations and related forces in linkages, cams, gears and other mechanisms. One hour lecture and six hours computation and drawing.
Prerequisite: M.E. 16, G.E. 16. Three units.

119. Machine Design. Principles of Kinematics, mechanics, properties of materials and manufacturing processes applied to design of machine elements. Two hours lecture and six hours computation and drawing.
Prerequisite: M.E. 118. Four units.

125. Thermodynamics. Energy concepts. The general Energy Equation. Characteristics of gases. Enthalpy. Entropy. Reversibility. Properties of vapors and gases. Cycles for internal combustion engines. Compression and expansion of gases. Combustion and the products of combustion. Variable specific heats. Vapor processes. Vapor cycles. Steam engines. Steam generators. Steam power plant cycles. Flow of gases and vapors through nozzles. Steam turbines. Refrigeration. Air conditioning. Heat transfer. The economic problem. Load curves. Selection of type of plant. Energy rates. Three hours lecture.
Prerequisite: Physics 10. Three units.

126. Thermodynamics. Continuation of M. E. 125. Three hours lecture.
Prerequisite: M. E. 125. Three units.

130. Thermodynamics. Sources of energy. Combustion Conversion of heat energy into mechanical energy. The Otto cycle. The Diesel cycle. The steam boiler. The steam engine. The steam turbine. Pumps. For civil engineering students. Three hours lecture.
Prerequisite: Physics 10. Three units.

138. Production Control. The problem of the production of goods. Factors which aid modern productivity. Coordination of sales and manufacturing. Organization for production control. Research. Budgets. Materials. Machine replacement. Methods and standards. Planning and routing. Operation and instruction sheets. Centralized control of production. Inspection. Measures of factory performance. Three hours lecture.
Prerequisite: G. E. 121. Three units.

141. Heat Transfer. An introduction to the concepts of conduction, convection and radiation heat transfer and application of these concepts

to engineering problems. Two hours lecture and three hours of problem solving and experimentation.
Prerequisites: M.E. 126, M.E. 174. Three units.

142. Heat Transfer. Continuation of M.E. 141, with emphasis on convective heat transfer and heat exchanger design. Two hours lecture and three hours of problem solving and experimentation.
Prerequisite: M.E. 141. Three units.

143. Machine Vibrations. Elementary consideration of machine vibrations; causes, methods of damping and isolation. Two hours lecture.
Prerequisite: G.E. 115. Two units.

145. Internal Combustion Engines. Thermodynamics of reciprocating and continuous combustion engines. Idealized and real fluid cycle analysis. Study of major variables, compression ratios, fuels and air fuel ratios, etc. Three hours lecture and three hours of laboratory experimentation.
Prerequisites. M.E. 126, M.E. 174. Four units.

147. Physical Metallurgy. A study of Phase equilbria, the fundamental structure of metals and alloys, the transformations in steel, the functions of alloying elements in steel, grain size and grain growth, hardening, and heat treatment. One hour lecture and three hours laboratory problems and experimentation.
Prerequisite: Senior standing in Mechanical Engineering. Two units.

148. Time Study and Motion Analysis. Measurement of labor Operation analysis. Motion Study. Process Charts, Laws of motion economy. Micromotion study. Film analysis procedure. Standardizing the job. Skill. Effort. Formula expression. Formula working sheets. Two hours lecture.
Prerequisite: M. E. 153. Three units.

150. Heating, Ventilating and Air Conditioning. Psychrometry, Cooling load and Heating load computation. Principles of refrigeration and refrigerants. Three hours lecture and three hours of laboratory computations and experimentation.
Prerequisite: M.E. 141 Four units.

151. Methods Study. The analysis, improvement and standardization of industrial methods through the application of the principles and techniques of scientific management.
Prerequisite: M. E. 138. Three units.

153. Management Engineering. Industrial organization and management. Time and motion study. Wage systems, Cost accounting. Personnel work. Engineering economics. The financial structure. Public control of business. Taxation. The problem of investment. Valuation. Estimating. Engineering reports. Three hours lecture.
Prerequisite: Junior standing. Three units.

154. Management Engineering. Continuation of M.E. 153. Three hours lecture.
Prerequisite: M. E. 153. Three units.

155. Aerodynamics and Aircraft Structures. Basic principles of flight, mechanics of lift and drag, analysis of aircraft performance, stability and control. Introduction to structural design. Three hours lecture and three hours problem solving and experimentation.
Prerequisite: G.E. 116. Four units.

170A. Thesis. Investigation of some engineering problem and the writing of an acceptable thesis. Conferences as required.
Prerequisite: Senior standing in Mechanical Engineering. One unit.

170B. Thesis. Continuation of M.E. 170A.
Prerequisite: M.E. 170A. One unit.

170C. Thesis. Continuation of M.E. 170A.
Prerequisite: M.E. 170A. Two units.

174. Mechanical Engineering Laboratory. Planning, testing and analyzing results of tests performed on various mechanical engineering equipment such as hydraulic pumps; steam boilers, turbines, engines; and internal combustion engines. Six hours laboratory.
Prerequisites: M.E. 15 and M.E. 125. Two units.

180. Mechanical Engineering Laboratory. Experimental study of simple measuring devices and their application in the determination of such quantities as power of engines and motors, heating value of fuels and efficiencies of prime movers. For civil engineering students. Three hours laboratory.
Prerequisite: To accompany M. E. 130. One unit.

187. Time Study Laboratory. Stop watch and camera studies of various jobs. Development of the one best way to perform a job. Development of the time standard for a job. Six hours laboratory.
Prerequisite: To accompany M. E. 137. Two units.

188. Production Laboratory. Scheduling and job instruction applied to work in the University shops and laundry. Visits to manufacturing plants. Six hours laboratory.
Prerequisite: To accompany M.E. 138. Two units.

194. Power Plant Design. Principles of engineering economy applied to the selection of power plant sites and equipment. Layout of a complete power plant. Five hours lecture, computation and drafting.
Prerequisite: M.E. 126. Three units.

MILITARY SCIENCE AND TACTICS

Basic Course

1-2. First Year. Organization of the Army and orientation on ROTC. Survey of American Military History to give a sound foundation in the principles of the art of warfare. Preliminary markmanship, range firing, and leadership training. Two conferences. One hour drill. Two semesters. Three units.

3-4. Second Year. Functioning, care and technique of fire of infantry weapons, maps and aerial photographs. Leadership training continued. Two conferences. One hour drill. Two semesters. Three units.

Advanced Course

101-102. First Year. Branch tactics and technique. Leadership, drill, and exercise of command. Four hour lecture. One hour drill. Two semesters. Not given 1954-1955. Eight units.

103-104. Second Year. Military administration and personnel management. Military teaching methods. Psychological warfare. Branch tactics and technique. Leadership, drill, and exercise of command. Four hours lecture, one hour drill. Two semesters. Eight units.

Advanced Course

101-102. First Year. Principles of small unit tactics. Familiarization with means and principles of signal communication. Familiarization with organization, mission, functions of various arms and services. Understanding of the principles and methods of military instruction. Leadership training continued. Four conferences, one hour drill. Two semesters. Eight units.

103-104. Second Year. Supply and movement of small units, staff organization and functioning using division staff as a model. Basic concepts of military personnel management. Preparation of future officers for active service by orientation on geographical and economic factors, their influence on the division of peoples into nations and the courses of war. Responsibilities of a leader. Four conferences, one hour drill. Eight units.

Summer Training Camp

The six weeks training supplements the campus instruction, much of which is theoretical in nature, by additional applicatory training to qualify the student for appointment in the Army Reserve. It is essentially of the individual and unit type with the student receiving experience in the performance of tactical, technical and administrative duties in the field. Particular emphasis is placed on the development of leadership and the student's capability to function effectively in small unit combat operations. Neatness, military bearing, and soldierly behavior also are emphasized. Training is conducted within a 48 hour, 5½ day week and normally in the summer between the junior and senior years.

MUSIC

The University offers no Major in Music. However, credit may be applied toward elective units for graduation in any one of the various colleges of the University.

Music courses are offered so that students will be afforded the opportunity of experiencing music as an integral part of their cultural life; to present music as a means of broadening their field of action and to give them an opportunity to participate in the various extra curriculum activities approved by the University.

1A-1B. Band. Two hour-and-a-half sessions and one sectional rehearsal per week. Open to all students whose musicianship meets with the requirements set by the instructor. One unit.

2A-2B. Glee Club. Two hour-and-a-half sessions and one sectional rehearsal per week. Open to all students whose musicianship meets with the requirements set by the instructor. One unit.

10A-10B. Sacred Music. Rudiments of Gregorian Chant, harmony and polyphony. Theory put to practice by singing at Mass and other functions in the Mission Church. Two semesters. Two units.

PHILOSOPHY

Students who wish to make Philosophy their major subject, besides completing the other required courses of the lower division, must pass the course in Philosophy 41A-41B with at least a grade of C.

The major program must include 24 units of upper division courses in Philosophy. An average grade of C must be maintained in the major

subject and, at the end of the senior year, each student must pass a comprehensive final examination.

A minor, including 12 upper division hours in addition to the lower division prerequisites, must be chosen by each student making Philosophy his major.

9. **Logic.** An introductory course in the science of correct thinking, comprising both deductive and inductive inference, and scientific method. Exercises in the various forms of logical inference and in the detection of fallacies. Spring semester. Three hours. Three units.

20. **Metaphysics I.** An introduction to the student of the perennial problems of philosophy, such as being and becoming, unity and multiplicity, together with Aristotelian and Thomistic solutions such as potency and act, matter and form, analogy, the four causes. Fall semester. Three hours.
Prerequisite: Philosophy 9. Three units.

21. **Philosophy of Nature.** The main problems of cosmology: the structure of the physical universe and its philosophical interpretation. Matter and energy, quantity and motion, space and time. Mechanistic and teleological theories compared. Fall semester. Three hours.
Prerequisite: Philosophy 9. Three units.

22. **Philosophy of Man.** Philosophical psychology as distinct from empirical psychology. Man in his unity; his sensitive, intellectual, and volitional life. Spring semester. Three hours.
Prerequisite: Philosophy 20. Three units.

41A-41B. **History of Philosophy.** A comprehensive survey of the whole history of philosophy, ancient, medieval, and modern. Required of Philosophy majors, but open to others with sophomore standing. Both semesters. Three hours.
Prerequisite: Philosophy 9. Six units.

61. **First Principles of Philosophy.** This, together with Phillosophy 62, 63, 64, forms a compendious course designed for engineering students. After a brief survey of logic, the student is introducd to the chief problems of metaphysics: being and becoming, unity and multiplicity, substance and casualty. Open to engineering students only. Fall semester. Three hours. One and one-half units.

62. **The Nature of Man.** The problems of rational or philosophical psychology. The philosophical study of man: the relations between his mind and body, his chief mental operations and their ultimate principle. Open to engineering students only. Spring semester. Three hours.
Prerequisite: Philosophy 61. One and one-half units.

63. **Knowledge and Reality.** The problems of epistemology and natural theology. The theory of knowledge: the validity of human reason in its pursuit of truth. The existence, nature, and attributes of God; His relations to the universe. Open to engineering students only. Fall semester. Three hours.
Prerequisite: Philosophy 62. One and one-half units

64. **Philosophy of Morals.** General Principles of ethics and their application to man's individual and social life: man's personal, marital, proprietary, industrial, political, and international rights and duties. Open to engineering students only. Spring semester. Three hours.
Prerequisite: Philosophy 63. One and one-half units.

109. Theory of Knowledge. A critique of knowledge: idealistic and realistic attitudes. The metaphysics of knowledge: formal truth and certitude. Fall semester. Three hours.
Prerequisite: Philosophy 22. Three units.

110. Metaphysics II. The existence, nature, and attributes of God as knowable from human reason. Philosophical theories on God and His relation to the universe examined and evaluated. Spring semester. Three hours.
Prerequisite: Philosophy 109. Three units.

151. Basic Ethics. The general principles of morality. The aim of human life, the norm of morality, the moral law, obligation and responsibility, virtue and vice, rights and duties. Fall semester. Three hours.
Prerequisite: Philosophy 110. Three units.

152. Social Ethics. The application of general moral principles to definite human rights and duties. The ethics of society; domestic, industrial, political, and international. Spring semester. Three hours.
Prerequisite: Philosophy 151. Three units.

153. Ethics. The above two courses reduced to one semester for the benefit of law students, to whom alone this course is open. General principles of morality and their practical application to the chief spheres of human conduct, both individual and social. Fall semester. Three hours. Three units.

The following courses, several of which are offered each year, are designed for those majoring in philosophy, but are open to other students with upper division standing. Those majoring in philosophy must take, besides the regular philosophy curriculum, at least five of the following courses.

161. Aesthetics and the Philosophy of Art. An historical introduction to the problems of aesthetics. The metaphysics of the Beautiful; the nature and relationship of art and prudence, and the nature of poetic intuition. Three hours. Three units.

171. Plato. A study of several of the Dialogues in conjunction with the great commentators. Outside readings and reports assigned. Three hours. Three units.

172. Aristotle. The chief purpose of this course is to acquaint the student with the Aristotelian corpus. Either the Organon, the Physical works, the Metaphysics, the Ethics, or the Politics will be read and the various theories of interpretation considered. Three hours. Three units.

173. The Thomistic Synthesis. An attempt, working from the Thomistic text, to disengage the fundamental unifying principles which give the Thomistic philosophy its lasting value. Three hours. Three units.

174. Seventeenth Century Philosophy. The definitive break from the medieval tradition and the rise of modern philosophy. The rationalism of Descartes, Spinoza, and Leibniz, as contrasted with the empiricism of Locke, Berkeley, and Hume. A more intensive study of some of these philosophers' writings. Three hours. Three units.

175. Kant and the German Idealists. Immanual Kant and his reaction to the empiricism of Hume and the rationalism of Leibniz and Christian Wolff; his influence on Fichte, Schelling, and the Hegelian tradition. Selections from the major works will be read and analyzed. Three hours. Three units.

176. Contemporary European Philosophy. A survey of leading contemporary schools of thought. At the discretion of the professor, an intensive study will be made of more particular trends in present day thought, such as existentialism, logical positivism, or recent developments in Thomism. Three hours. Three units.

177. American Philosophy. A survey of the main movements in American philosophy from its beginning, with particular stress on recent and contemporary trends, such as pragmatism, instrumentalism, and personalism. Three hours. Three units.

180. Philosophy of Education. A critical study of the theories and general principles of education affecting present day procedures. Three hours. Three units.

181. Philosophy of History. A study of the attempts philosophers have made to discover the nature of history, its basic schemes and patterns. Critical evaluation of these theories. Three hours. Three units.

182A-182B. Political Philosophy. A survey of the basic concepts of justice, right, law, and sovereignty as treated by various Western political philosophers. Same as Political Science 118A-118B. Three hours. Two semesters. Six units.

198. Special Studies.

PHYSICS

Students who wish to make Physics their major subject are required to complete, in addition to general requirements for the Bachelor's degree, the following lower division courses: Physics 1A and 1B, Physics 20A and 20B, Chemistry 1A and 1B, and Mathematics 3A and 3B and 4A and 4B.

The major program must include the following upper division courses: Physics 101A and 101B, Physics 110A and 110B, Physics 120A and 120B, and Physics 140. For those students intending to do graduate work, Physics 130A and 130B are recommended.

This group of courses will be discontinued after June, 1955.

1. Mechanics, Molecular Physics, Sound. General principles of matter. General properties of bodies. Equilibrium. Gravity. Pendulum. Properties peculiar to solids. Capillarity. Hydro-dynamics. The properties of gases. Aerodynamics. Production, propagation and reflection of sound. The physical theory of music. Three hours lecture. Fall semester. Three units.

2. Physical Laboratory. To accompany Physics 1. Three hours laboratory. Fall semester. One unit.

3. Light, Heat, Electricity. Transmission, velocity and reflection of light. Mirrors. Lenses. Dispersion and achromatism. Optical instruments. The eye. Double refraction. Interference and polarization. Properties of magnetism. Laws of magnetic action. Terrestrial magnetism. Quantitative laws of electric action. Distribution. Electro-static induction of influence. Electric machines. Condensation of electricity. Voltaic cell. Its modifications. Magnetic field due to current. Galvanometers. Ohm's law. Conversion of electric energy into heat. Thermo-electricity. Electro-dynamics. Electro-magnets. Magnetization of iron. Telegraphy. Electro-magnetic induction. Passage of electricity through gases. Magneto and dynamo-electric machines. Dia-magnetism. Connection between electricity and light. Three hours lecture. Second semester.
Prerequisite: Physics 1, 2. Three units.

4. Physical Laboratory. To accompany Physics 3. Three hours laboratory. Spring semester.
Prerequisite: Physics 1, 2. One unit.

11. Mechanics of Solids, Liquids and Gases. Lectures with illustrations and problems covering the properties of matter, mechanics of solids and fluids. Spring semester. Two units.

12. General Physics. Lectures with illustrations and problems in relation to surface tension, magnetism and electricity. Fall semester.
Prerequisite: Physics 11. Three units.

13. Physical Laboratory. To accompany Physics 12. Six hours laboratory. Fall semester. Two units.

14. General Physics. Lectures with illustrations and problems in relation to wave motion, sound, heat, and light. Spring semester.
Prerequisite: Physics 11. Three units.

15. Physical Laboratory. To accompany Physics 14. Three hours laboratory. Spring semester.
Prerequisite: Physics 12, 13. One unit.

This group of courses will be given after September, 1955.

1A. General Physics. An introductory lecture, problem, and laboratory course dealing with the fundamental laws of mechanics, heat, and sound. Three hours lecture, three hours laboratory. Fall semester. Four units.

1B. General Physics. Continuation of Physics 1A. Study of the fundamental laws of light, electricity, and magnetism. A brief survey of modern physics. Three hours lecture, three hours laboratory. Spring semester. Four units.

2A. General Physics. An introductory lecture and demonstration course on selected principles of physics. Designed for students majoring in non-science fields. Three hours lecture, one three hour laboratory. Fall semester. Four units.

2B. General Physics. Continuation of Physics 2A. Three hours lecture, one three hour laboratory. Spring semester. Four units.

8. General Physics. Lectures and problems dealing with the mechanical properties of solids, liquids and gases. A required course for engineering and chemistry students. Two hours lecture. Spring semester. Two units.

9. General Physics. Continuation of Physics 8. Study of the fundamental laws of heat, electricity and magnetism. Three hours lecture, six hours laboratory. Fall semester. Five units.

10. General Physics. Continuation of physics 9. Lectures and laboratory work devoted to the study of light and modern physics. Three hours lecture, three hours laboratory. Spring semester. Four units

20A. Principles of Optics. Lecture course devoted to the study of geometrical and physical optics. Two hours lecture. Fall semester.
Prerequisite: Physics 1B. Two units.

20B. Principles of Optics. Continuation of Physics 20A. One hour lecture, three hours laboratory. Spring semester.
Prerequisite: Physics 20A. Two units.

30. Heat and Thermodynamics. A study of temperature, the laws of thermodynamics, and application of thermodynamics to pure substances and special systems. Three hours lecture. Fall semester. Three units.
Prerequisites: Physics 1A and 1B, or Physics 8 and 9.

40. Introduction to Electronics. A lecture and laboratory course in the study of the characteristics of vacuum and gas filled tubes and elementary electronic circuits. Two hours lecture, one three hour laboratory.
Prerequisites: Physics 1A and 1B, or Physics 8 and 9.
Three units.

101A. Electricity and Magnetism. A study of the laws of electrostatics, direct and alternating currents, non-ohmic circuit elements, chemical, thermal and photoelectric effects, electrical conduction in gases, thermionic vacuum tubes. Three hours lecture, three hours laboratory. Fall semester. Four units.
Prerequisites: Physics 1B or Physics 9; Mathematics 121 (may be taken concurrently).

101B. Electricity and Magnetism. Continuation of Physics 101A. Electromagnetic effects, magnetic properties of matter, simple circuits containing resistance, inductance, and capacitance. Maxwell's equations, radiation. Three hours lecture, three hours laboratory. Spring semester.
Prerequisite: Physics 101A. Four units.

106. Electrical Measurements. Experimental study of fundamental electric circuit parameters and development of techniques for determination of their values. Limitations on accuracy of measurements are studied. Two hours lecture and three hours laboratory.
Prerequisite: E.E. 125. Three units.

110A. Analytical Mechanics. A course devoted to the study of the fundamental principles of Newtonian mechanics, plane statics, plane kinematics, methods of plane dynamics, plane impulsive motion. Three hours lecture. Fall semester. Three units.
Prerequisites: Physics 1A or Physics 9, Mathematics 121 (may be taken concurrently).

110B. Analytical Mechanics. A continuation of Physics 110A. Statics and dynamics in space. Introduction to Lagrange's and Hamilton's Equations. Three hours lecture. Spring semester. Three units.
Prerequisite: Physics 110A.

120A. Modern Physics. A study of atomic physics. Discovery of the electron, thermionic and photoelectric emission, special theory of relativity, atomic spectra, Bohr-Rutherford Theory, quantum mechanics, molecular structure. Three hours lecture, three hours laboratory. Fall semester.
Four units.
Prerequisites: Physics 1A and 1B, or Physics 8, 9, and 10, Mathematics 4A and 4B.

120B. Modern Physics. A study of nuclear physics. Natural radioactivity, induced nuclear reactions, nuclear fission and applications of nuclear physics, cosmic rays. Three hours lecture, three hours laboratory. Spring semester. Four units.
Prerequisite: Physics 120A.

130A. Introduction to Theoretical Physics. A course designed to introduce the student to the mathematical techniques used in modern-day physics. Theoretical analysis of mechanical systems using Lagrange's Equations, the Hamilton-Jacobi partial differential equation. Three hours lecture. Fall semester. Three units.

130B. Introduction to Theoretical Physics. A continuation of Physics 130A. Field theory of electromagnetism, Maxwell's Theory, plane, cylindrical and spherical waves, guided waves, diffraction and scattering of electromagnetic waves. Three hours lecture. Spring semester.
Prerequisite: Physics 130A. Three units.

140. Methods of Research. For students majoring in Physics. Work of a research or advanced laboratory nature which can be incorporated into the senior thesis. Credit to be arranged.

POLITICAL SCIENCE

Students who wish to make Political Science their major subject, besides completing the other required courses of the Lower division, must pass courses in Political Science 1-2 and History 2A-2B and an additional six unit course in either Economics or Sociology with at least a grade of C.

The major program must include 24 units of upper division work in Political Science, except when with the written permission of the department chairman, 3 to 6 hours may be allowed from a related field. Courses completed for a major in Political Science must include Political Science 118A and 118B, 157, and 123 or 133. Other upper division courses must be taken from at least three of the four groups into which the field is divided, and an average of C must be maintained. It is strongly recommended that Economics 1A and 1B be included in the program of the Junior year.

Lower Division

1-2. Introduction to Government. An introduction to the principles and problems of government, with particular emphasis on national government in the United States. This course is accepted in satisfaction of the American History and Institutions requirement. Three hours. Two semesters. Six units.

20A-20B. American Institutions. A survey of the history and constitutional development of the United States to clarify current problems of American democracy and of the principles of state and local government established under the California Constitution. Two units

Upper Division

Group 1, Political Theory and Public Law

113. American Political Thought. A study of the development of American ideas in the sphere of authority from the Puritans to the present. Three hours. Three units.

118A-118B. History of Political Doctrines. A survey of the basic concepts of justice, rights, law, and sovereignty as treated by various Western political philosophers. Three hours. Two semesters. Six units.

157. Constitutional Law. A study of the origin and growth of the federal system in the United States. The development of federal power; the rights of the states and of the citizens. Three hours. One semester. Three units.

158. Government and Business. Government regulation of business as exercised especially by the Federal authority. Regulation of carriers; business combines; trusts, business practices, public utilities, etc. Investigation of government's regulatory machinery. Three hours. One semester. Three units.

Group 2, Government and Politics

140. Political Problems of Labor. Trade unions and the labor movement; their history, development and structure. Government regula-

tion; an analysis of labor legislation, collective bargaining and social legislation. Labor as a political force. Three hours. One semester. Three units.

149A-149B. Comparative Government. A study of selected government in: A. Latin America and Europe; B. Russia and Asia; their ideology, structure and problems. Three hours. Two semesters. Six units.

152. United States Political Parties. The origin, organization and activities of political parties; campaign techniques; the spoils system; party influence on domestic and foreign policy. Three hours. One semester. Three units.

160. Public Relations. A study of Public opinion in the United States. The principles and methods involved in public relations in government, industry and labor. Three hours. One semester. Three units.

Group 3, Public Administration

162. Municipal Government and Administration. The development of the modern city; relations of city government to other governmental units; municipal politics; types of municipal government. Current municipal problems such as city and regional planning, finance, law enforcement. Three hours. One semester. Three units.

172. State Government and Administration. The development of state constitutions; federal-state relations; politics and elections; the legislative process; the courts; county government; the organization and current major problems of the state administrative system. Three hours. One semester. Three units.

181. Principles of Public Administration. Growth of public administrative agencies; their interrelations; organizations; personnel; administrative planning. Three hours. One semester. Three units.

Group 4, International Relations

123. International Politics. The growth of the western state system; the problems of nationalism, imperialism and war. Three hours. One semester. Three units.

124. International Organization and Administration. International unions and commissions; the League of Nations; the United Nations; other agencies of international cooperation; their character, relations and administration. Three hours. One semester. Three units.

133. International Law. The sources, nature and growth of international law, and its functions as part of the legal system of the earth. Three hours. One semester. Three units.

175. United States Foreign Policy, Service and Diplomacy. An historical sketch of the principles and practices of the United States in foreign affairs; the organization and work of the State Department; the Foreign Service. Three hours. One semester. Three units.

PSYCHOLOGY

1. Introductory Psychology. The study of man as a psychophysiological organism. A general survey of scientific psychology, dealing with neural organization and function, sensation, perception, learning, the measurement of intelligence, emotion and feeling, volition, character and personality. Fall semester. Three hours. Three units.

PUBLIC SPEAKING AND DRAMATICS

1. **Fundamentals of Expression.** The fundamental principles of public speaking; the speaking voice; the body and expression movement. Practice in the basic types of speaking situations and oral reading. Two hours. Fall semester. One unit.

2. **Fundamentals of Expression.** A continuation of course 1 with practice in more advanced types of speaking situations; argument; persuaions, discussion; parliamentary procedure. Two hours. Spring semester. one unit.

3. **Advanced Public Speaking.** Advanced study of the principles of public speaking; advanced training of the voice; practice in the composition of the formal address; the oral interpretation of literature. Two hours. Fall semester. One unit.

4. **Advanced Public Speaking.** A continuation of course 3 with practice in the radio speech and the forum-debate. Two hours. Spring semester. One unit.

5. **Voice and Diction.** The fundamental principles of voice production; a study of the basic sounds in American speech by means of applied phonetics; practice in the articulation of consonants and the pronunciation of vowels and dipthongs, through oral reading, speeches, and out-of-class drill. Required of most foreign students and others with pronunciation difficulties. Two hours. Fall semester. One unit.

11. **Fundamentals of Expression.** A short course in public speaking for students in the College of Engineering. The fundamental principles of public speaking; the speaking voice; body and movement; practice in the basic types of speaking situations; presentation of reports and surveys; conference techniques; discussion and conference. Two hours. Fall or Spring semester. One unit.

101. **Introduction to the Theatre.** An elementary course in the nature of the theatre; its origin and development; the types and styles of drama; and in introduction to theory and criticism using selected plays as illustrative material. Intimate acquaintance with the living theatre will be supplied by required work on current productions. Three hours. Fall semester. Three units.
Prerequisite: Junior standing.

102. **Introduction to the Theatre.** A continuation of course 101. The development of the architecture of the theatre and its machines; the director; the actor, the designer; and the styles of production studied with reference to selected plays used as illustrative material, supplemented by required work on current productions. Three hours. Spring seemster.
Prerequisite: Dramatics 101. Three units.

107. **Dramatic Workshop.** Subject to the approval of the Director of Dramatics, a student may earn one unit of academic credit per semester for participation in projects of the Clay M. Greene Players.
Prerequisite: Two semesters of theatre experience on the campus.

109. **Debating Seminar.** The application of the principles of expression to the Debate. A study of the particular form of debating. Presentation and arrangement of ideas. Practical application of methods in connection with a major collegiate debate. Hours and credits to be arranged.

RELIGION

5. **The Sacraments.** A study of the Sacraments of Baptism, Confirmation, Penance, Holy Eucharist, Extreme Unction, and Holy Orders—their nature and efficacy as a means of Grace. Two hours lecture. One semester. One unit.

6. **The Life of Christ.** The origin and literary type of the Gospels: their religious value, source book of Christian origins. The religious, political, topographical backgrounds of the life of Christ. The life of Christ and the work He came to accomplish as revealed in the Gospels. Two hours lecture. One semester. One unit.

7. **The Existence and Essence of God.** Belief in God, the nature of Faith. The necessity and certainty of Faith. Sources of proof of God's existence. The nature and essence of God. His attributes, Pantheism and Atheism. The mystery of the Trinity. Two hours lecture. One semester. One unit.

8. **Creation.** Original Justice. Original Sin. The Immaculate Conception. The general Judgment; Heaven; Hell; Purgatory. Two hours lecture. One semester. One unit.

103. **The Sacraments.** The Sacraments as a means of Grace. The nature and efficacy of the Sacraments. Discussion of the Sacraments of Baptism, Confirmation and the Holy Eucharist. Two hours lecture. One semester. One unit.

104. **The Sacraments.** A continuation of Religion 103. Discussion of the Sacraments of Penance, Extreme Unction, Holy Orders and Matrimony. A discussion of Christian morality. Two hours lecture. One semester. One unit.

107. **God, The Redeemer, and Redemption.** The Mystery of Redemption. The incarnation. The divine and human natures of Christ. His divine and human wills. The merits of Christ. The Worship of Christ. Devotion to the Mother of God. The nature and necessity of Grace. Kinds of Grace. Two hours lecture. One semester. One unit.

108. **Moral Guidance.** A study of Christian principles of morality as found in the Ten Commandments and Church law. Cases illustrating these principles. Two hours lecture. One semester. One unit.

109. **Fundamental Apologetics.** Revelation; guarantees of Revelation. Documents of Revelation. The authenticity, integrity and reliability of the four Gospels, the Catholic Church as the Church of Christ. Its authenticity as a teaching and ruling body. The primacy of St. Peter. The nature and character of Christ's Church. The marks of the true Church of Christ. Two hours lecture. One semester. One unit.

110. **The Sacrament of Matrimony.** The Divine Institution, the essential properties, and the Sacramentality of Christian marriage; its blessings (children-love-holiness). The errors and vices opposed to it. Morals for the married, and the Cannon law of the Church concerning marriage. Two hours lecture. One semester. One unit.

SOCIOLOGY

1-2. **Introduction to Sociology.** A study of the principles of Sociology and its chief concepts and problems. Given in alternate years. Three hours lecture. Two semesters. Six units.

SPANISH

Students who wish to make Spanish their major subject are strongly urged to complete all lower division requirements while in the lower division. They must present a C average in all prerequisite courses including Spanish 5 and 6.

The major program must include 24 units of upper division work in Spanish, at least one year of college Latin or equivalent (two years High school Latin), and History 161A and 161B, History of the Americas. An average grade of C must be maintained in all courses of the major, and, at the end of the senior year, each student must pass a comprehensive final examination.

1. **Elementary Spanish.** Elements of Spanish grammar. Drill in pronunciation. Vocabulary. No credit allowed to students who have completed two years of high school Spanish. Three hours. Fall semester. Three units.

2. **Elementary Spanish.** A continuation of Spanish 1. Syntax, oral and written exercises. Reading from the simpler Spanish prose. No credit allowed to students who have completed two years of high school Spanish. Three hours. Spring semester. Three units.

3. **Intermediate Spanish.** Review of grammar and syntax. Oral and written exercises. Reading of somewhat difficult Spanish prose. Three hours. Fall semester.
Prerequisite: Spanish 2. Three units.

4. **Intermediate Spanish.** Reading, written and oral exercises. This course aims at preparing the student to read the more difficult Spanish writers. Three hours. Spring semester.
Prerequisite: Spanish 3. Three units.

5-6. **Spanish Composition and Reading.** Composition, sight reading, oral and written reports in Spanish. Open only to Spanish majors. Three hours. Both semesters.
Prerequisite: Spanish 4 or equivalent. Six units.

101. **Survey of Spanish Literature.** Survey of literature from its origin to the "Siglo de Oro". Study of representative works in the field of the novel, the drama and poetry of the period. Fall semester. Three units.

102. **Survey of Spanish Literature.** (Continued). Lectures and commentaries, mostly in Spanish, on the literature of Spain from the period of decadence to the XX century. Reading and discussion of representative works which illustrate literary trends from the XVIII century to the Modernista movement. Spring semester. Three hours. Three units.

103. **Masterpieces of Spanish Literature of the "Siglo de Oro".** Reading and interpretation of representative Spanish texts. Three hours. Fall semester.
Prerequisite: Spanish 102 or equivalent. Three units.

104. **Masterpieces of Modern Spanish Literature.** Study and reading of selected modern plays and novels typical of Spanish life, culture and thought. Three hours. Spring semester.
Prerequisite: Spanish 103 or equivalent. Three units.

105. **Advanced Composition and Conversation.** Consult Head of Department. Three hours. Fall semester.
Prerequisite: any upper division course. Three units.

106. Commercial Spanish. A study of commercial correspondence. Introduction to vocabulary and forms used by commercial institutions. Consult Head of Department. Three hours. Spring semester.
Prerequisite: Spanish 105 or equivalent. Three units.

107. Cervantes. Study and interpretation of "Don Quijote" and Cervantes' other great works. Three hours. Fall semester.
Prerequisite. Spanish 106 or equivalent. Three units.

108. Contemporary Spanish Drama. Reading, interpretation and discussion of significant works by Garcia Lorca, Benavente, Sierra and other outstanding Spanish dramatists of this period. Three hours. Spring semester.
Prerequisite: Spanish 107. Three units.

EVENING DIVISION COURSES

The following courses which are offered at night do not lead to a degree and do not require definite college preparation. If a student desires college credit for these courses refer to page 74.

Students who desire to work for a degree in Economics must fulfill University entrance requirements as well as degree requirements listed on page 53 or page 68 titled "Upper Division."

A certificate in Business Administration will be offered to those students who complete satisfactorily 36 units of required college work in the Evening Division at Santa Clara. The makeup of these units will depend upon the field of major emphasis selected but must include courses in Introduction to Business, Principles of Economics, Marketing, Accounting, and Business Ethics.

Business Administration

10A. Principles of Accounting. (Accounting 1A)*. A study of the basic principles underlying modern accounting processes with particular emphasis upon their application to the technique of classifying and recording actual business transactions. Three units.

10C. Accounting Laboratory. Accounting laboratory material related to Principles of Accounting 10A. One unit.

10B. Principles of Accounting. (Accounting 1B)*. A continuation of 10A. Special attention is given to the problems peculiar to the sole proprietorship, partnership and corporation. Elementary ideas on the problems of asset valuation are also discussed. Three units.

10D. Accounting Laboratory. Accounting laboratory material related to Principles of Accounting 10B. One unit.

11. Introduction to Business. The purpose of this course is to give the students a working knowledge of the management of business enterprises. The student is trained in methods of identifying and evaluating the influences upon a business enterprise, and is given a comprehensive view of modern practices of planning, organizing, and controlling activities in business. Three units.

16A. Mathematics of Finance. (Mathematics of Accounting 2)*. Algebraic computations; use of equations in bonus and tax problems and in the determination of simple interest and discount. Three units.

16B. Mathematics of Finance. A continuation of B.A. 16A. Actuarial science; compound interest, amounts, and present values; nominal and effective interest rates, sinking fund computations; debt amortizations; bond valuations at yield rates. Three units.

*Bracketed numbers refer to Catalogue for 1948-49.

40. Business Statistics and Forecasting. The prime purpose of this subject is to develop critical judgment in the student with regard to statistical information and to acquaint the student with the practical application of business statistics. The work covers the proper methods used in the collection, presentation, analysis, and interpretation of data as a basis for forecasting future business policies. Three units.

40C. Statistics Laboratory. A laboratory workshop in which the material developed in Business Statistics 40 is applied to problems and business cases. One unit.

121. Finance. An introduction to the problems surrounding the procurement of funds needed for carrying on a modern business enterprise. Topics covered will include: financial organization of modern industry; the instruments of enterprise finance; promotion and sale of securities; financing of operations of the going-concern; problems of financing growth and expansion; financial readjustments. Three units.

124. Investments and Investment Institutions. As Corporation Finance deals with the problems of business management division ways and means of procuring funds for enterprise operations, so this course will deal with the market for funds as viewed by those individuals and institutions who are offering those funds in that market. Therefore, among the subjects to be considered will be in the nature of the money market; institutions operating therein; and because of the significance of the presence of government, government control thereof. It will be presumed that a student electing this course possesses a working knowledge of commercial and central bank operations and of the fundamentals of enterprise finance. Three units.

125. Problems in Finance. A detailed analysis of specific problems in corporation finance. The background and needs of those enrolling will determine the specific topics covered. Three units.

126. Personal Finance. "The business management of personal finance problems." A new approach to the field of personal financial management with special emphasis on the use and control of credit, including the rights of credit grantors and grantees. Legal aspects of installment and other secured contracts will be reviewed. Principles and methods of personal and home finance will be discussed, including methods of financial control. Three units

130. Accounting Valuation. (Accounting 2A)*. A study of the theory and technique applied in the valuation of assets and liabilities in the preparation of private enterprise balance sheets and profit and loss statements. Consideration will also be given, where appropriate, to the similarities and differences between the accountants' problem of valuation and the economists' problem of value. Three units.

130C. Accounting Laboratory. Accounting laboratory material related to Accounting Valuation 130. One unit.

131. Accounting Proprietorship. (Accounting 2A)*. Problems arising from the existence of more than one proprietor in an enterprise will be discussed as well as the techniques and theory underlying the accounting for interests in the net worth of an enterprise and changes therein. About one-third of the course will be devoted to partnerships and the remaining two-thirds to corporations. Three units.

131C. Accounting Laboratory. Accounting laboratory material related to Accounting Proprietorship 131. One unit.

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*Bracketed numbers refer to Catalogue for 1948-49.

132A. Accounting Problems. (Accounting Problems 3A)*. The theory and technique underlying the preparation of statements for certain situations will be discussed and illustrative problems solved. Among the topics discussed will be bankruptcy, installment sales, branch accounting, estates and trusts, and public accounts. Other special problems by arrangement with the instructor. Three units.

132C. Accounting Laboratory. Accounting laboratory material related to Accounting Problems 132A. One unit.

132B. Accounting Problems. (Accounting 3B)*. Continuation of 132A with emphasis on parent and subsidiary accounting. Three units.

132D. Accounting Laboratory. Accounting laboratory material related to Accounting Problems 132B. One unit.

133A. Cost Accounting. (Cost Accounting 1)*. A study of the problems involved in recording the internal transactions of modern business enterprise, for use by management in control of activities. Particular emphasis is on industrial concerns but application to trading concerns, both wholesale and retail, are discussed. Particular topics include the determination of unit product costs, departmental costs, allocation of overhead, standard costs and budgetary control. Three units.

133C. Accounting Laboratory. Accounting laboratory material related to Cost Accounting 133A. One unit.

133B. Cost Accounting. A study of the problems involved in recording the internal transactions of modern business enterprise for use by management in control of activities. Particular emphasis is on the determination of unit product costs, departmental costs, allocation of overhead, process costs, standard costs, and budgetary control. Three units.

133D. Accounting Laboratory. Accounting laboratory material related to Cost Accounting 133B. One unit.

135. Analysis of Financial Statements. This course is concerned with the interpretation of the statistical significance of the numerical data compiled from accounting and supplementary records. Emphasis is placed upon statistical interpretation of the typical financial statements and interim reports prepared for the use of management. Three units.

137. Auditing. This course covers both theory and practice of auditing, discussion being supplemented with problems, questions, specimen working papers applicable to balance sheet audits, and laboratory work illustrating audit procedure. Auditing procedure involved in connection with cash and cash funds, receivables, inventories, investments, deferred charges, capital assets, intangible assets, liabilities, both actual and contingent, accounts showing net worth, closing of an audit, and preparation of audit reports. Three units.

138. Income Taxation. This course presents the underlying principles of income taxation and the special accounting and management problems involved in the determination of tax liability. The course develops the concept of taxable income and deals with special problems of individuals, partnerships, trusts, and corporation income taxes. Three units.

139A. Advanced Accounting. Corporations; funds and reserves; profit and loss analysis; statement of application of funds; consignments; installment sales. Three units.

139C. Accounting Laboratory. Accounting laboratory material related to Advanced Accounting 139A. One unit.

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*Bracketed numbers refer to catalog for 1948-49.

139B. Advanced Accounting. Continuation of 139A. Three units.

139D. Accounting Laboratory. Accounting laboratory material related to Advanced Accounting 139B.

141. Budgeting. A study of the preparation and the use of business budgets. Work in the course consists of the preparation of sales, production, materials, overhead, selling expense, and cash budgets which are assembled in a complete budget. Three units.

142. Fund Accounting. The theory and techniques underlying the record keeping and report preparation for governmental units and institutions such as hospitals, schools, foundations, etc. Three units.

143. Managerial Accounting. Its objective is an understanding of accounting and accounting reports as tools for management. Three units.

150. Life Insurance. Studies of the nature, and of the business and personal uses of life insurance and annuities; contracts; policy conditions; selection of risks; types of carriers; mathematical bases; group, wholesale, and industrial insurance; organization, management, regulation, taxation, and investment policy of legal reserve companies. Three units.

155A. (L-1E). Business Law. The nature and purpose of law and the historical development and its functions with emphasis on Contracts, Agency and Sales, Bailments and Carriers, and Property. Three units.

155B (L-2E). Business Law. Continuation of Business Law 155A with emphasis on Negotiable Instruments, Partnerships, Corporations, Bankruptcy, and Real Estate. Three units.

156A. Real Estate Law. The fundamental principles of law generally facing those in real estate and business operations. A case study course emphasizing real property law; real estate contracts; transfers of real estate, including various forms of deeds, trusts, sales, and recordation. Three units.

156B. Real Estate Law. A continuation of Real Estate Law 156A. Three units.

157A. Transportation Law. Fundamentals of bailments and carriers contracts, agency and other transportation laws upon which traffic regulations and claims are based. Procedures followed in handling losses, damages and overcharge claims, reparation, and complaints. Three units.

157B. Transportation Law. Continuation of Transportation Law 157A. Three units.

158A. Labor Law. This course emphasizes the administration of labor policy. It covers wages, hours, conditions of work, employment, industrial relations, labor unions, unfair labor practices including both employees' and employers' rights, bargaining, strikes and picketing, and wage-hour controls. Reference will be made to the National Labor Relations Act. While leading court decisions will be discussed, primary focus will be on the practical application of labor laws to labor management relations. Three units

158B. Labor Law. This course emphasizes the administration of labor policy. It covers wages, hours, conditions of work, employment, industrial relations, labor unions, unfair labor practices, including both employees' and employers' rights, bargaining, strikes and picketing, and wage-hour controls. While leading court decisions will be discussed, primary focus will be on the practical application of labor laws to labor management relations. Three units.

160. Industrial Organization and Management. (Business Management 1)*. The purpose of this course is to give the student a working knowledge of fundamental principles underlying the management of business enterprises. The student is trained in methods of identifying and evaluating the influences upon a business enterprise, and then is given a comprehensive view of modern practices of planning, organizing, and controlling various functional activities in business. Three units.

161. Office Management. The course includes a discussion of the application of modern management principles and practices as applied in the organization, operation, and control of office functions. Deals specifically with the planning, scheduling, measurement of work, use of labor-saving appliances and methods, office services, costs, budgets, and the selection, training and supervision of workers. Three units.

161C. Office Management Laboratory. A laboratory workshop in which the material developed in Office Management 161 is applied to problems and business cases. One unit.

162A. Business Policies and Management. The purpose of the course is to develop the ability to apply economic analysis to the solution of the individual firm's problems, and to study the effect of such decisions on the economy as a whole. Included is a study of the principles involved in policy formation and the problems embodied in establishing responsibilities for the executive. Three units.

162B. Business Policies and Management. Continuation of 162A. Three units.

162C. Business Policies and Management Laboratory. A workshop using material related to Business Policies 162A. One unit

163. Production Control. The problem of the production of goods. Factors which aid modern productivity. Coordination of sales and manufacturing. Organization for production control. Research. Budgets. Materials. Machine replacement. Methods and standards. Planning and routing. Operation and instruction sheets. Centralized control of production. Inspection. Measures of factory performance. Three units.

163C. Production Control Laboratory. A laboratory workshop in which the material development in Production Control 163 is applied to problems and business cases. One unit.

165. Retailing. A study of the organization and management of retail establishments. Among the topics discussed will be; store location; organization; policies; sales systems; profit; turnover; buying; the physical control of inventories; personnel; statistics; summaries for management control. Three units.

165C. Retailing Laboratory. A laboratory workshop in which the material developed in Retailing 165 is applied to problems and business cases. One unit.

166. Personnel Management. The purpose of this course is to give the students a thorough knowledge of the principles of scientific management and the ability to recognize the limitations and uses of the tools and mechanism of management. Throughout the course, such management devices as present-day industrial tendencies, labor maintenance and control, wage payment and wage incentives, inspection, and cost analysis are studied as aids in clarifying and solving management problems. Three units.

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*Bracketed numbers refer to catalog for 1948-49.

167. Purchasing. The procurement of materials, equipment and supplies in industrial, merchandising, governmental and institutional organizations are discussed. Topics covered include the scope of the purchasing function, purchasing procedure, quality control, quantity control, sources and assurance of supply and price policies. This course is designed for people in the industrial, wholesale, and retail fields. Three units.

167C. Purchasing Laboratory. A workshop using material related to Purchasing 167. One unit.

168. Administrative Practices. A study of cases on human relations in business. The objective of the course is to increase each individual's ability to work effectively with others. These "others" may be superiors, equals, or subordinates. The purpose of this work is to provide each student with an attitude which will make him a more responsible member of an organization, whatever his capacity. Three units.

169. Retail Merchandising and Sales Promotion. An analysis and discussion of current retail business activities and trends with emphasis on steps to stimulate reaction to merchandising and sales promotion efforts on a buyer's market. Leaders in the field will present actual current problems and solutions for consideration. Three units.

181. Principles of Marketing. (Marketing 1)*. The nature and importance of marketing; nature of producer and consumer; extent of and forces behind markets; marketing functions; cooperative marketing; methods and channels of distribution; the transportation problems connected with marketing; market price; government authority; trends in present marketing methods and policies. Three units.

181C. Marketing Laboratory. A laboratory workshop in which the material developed in Marketing 181 is applied to problems and business cases. One unit.

182. Marketing Problems and Cases. The specific case approach is used to analyze the problems of consumers, stimulation of demand, sales promotion and advertising programs, merchandising techniques and brand policies, planning of sales programs and pricing. Three units

Prerequisite for this course is Marketing 181 or equivalent.

Prerequisite: Marketing 181 or equivalent.

182C. Marketing Laboratory. A workshop using material related to Marketing 182. One unit.

183. Transportation. (Transportation 1)*. An economic analysis of the principle forms of commercial transportation in the United States. The particular problems of rail, water, motor, air, and pipe line transportation are considered. Three units.

184A. Advertising. An analysis of advertising and its main fundamentals, including copy, layout, production, media, campaigns, and operation of Advertising Departments and Agencies. Three units.

184B. Advertising. Continuation of 184A. Three units.

185. Salesmanagement. This course in Salesmanagement provides the necessary background material for men and women who plan to follow a career in sales. Some of the topics which will be discussed include: Sales Planning—Routing of Salesmen and Sales quotas, Product Planning and Product Research, Choice of Distribution Channels; Prices and Terms of Sale; Programs and Sales Promotion; Sales Department Organization,

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*Bracketed numbers refer to catalog for 1948-49.

Selection, Training, Compensation, and Management of the Sales Force, Inventory Policy and Control; Sales Costs and Budgets; Sales and Market Research. Three units

186. Salesmanship. Personal qualifications of the salesman; evaluating the needs of the prospective buyer; locating prospects; securing sales interviews; methods of arousing interest; analyzing different types of customers; how to deal with them; conducting sales demonstrations; answering objections; securing action; maintaining customer good-will. Three units.

187. Elementary Traffic Management. Only those people possessing a broad knowledge of traffic in all its phases are capable of solving the modern problems of carriers and shippers. This is a fundamental course in freight classification, freight movement and routing, handling and storage, and shipping papers, based on practical experience with many constructive transport suggestions. Three units.

188. Freight Classification and Tariffs. Types of freight tariffs; manner of publication; how to find rates between points; principals governing the interpretation of all freight tariffs; introduction to truck rates. Three units.

189. Freight Rates. Studies in the use of tariffs governing the shipment of carload and less than carload freight; pickup and delivery rates and rules; study of tariffs and rates applying between California and other points in the West using both rail and truck tariffs. Three units.

190. Motor Truck Rates. Types of trucking services; Interstate Commerce Commission and State regulation, obligations, rights and privileges of highway carriers and their shippers; analysis of rate decisions; problems in the computation of freight charges on traffic; freight rate structure for contract motor trucks and radial highway common carriers. Three units.

197. Newspaper Advertising. A complete study of preparation, potentialities and techniques of newspaper advertising for this area's advertisers. Plant tours, talks by newspaper, and advertising personnel, plus actual ad preparation will be featured in this course. Course is tailored to needs of advertisers of all types. Three units.

198. Public Relations and Publicity. Two of today's modern tools in molding public thinking are reviewed in this course that employs actual problems from business, industry ,and organizations, to show the proper techniques used in their solution. The principles of public relations, publicity, and journalism are combined to forge an effective business tool. Three units.

199A. Marketing Research and Analysis. The scope and importance of marketing and sales analysis and planning; types of research; collecting and analyzing data; presenting and interpreting results. Three units.

Economics

1A. Principles of Economics. The student is made acquainted with the general principles, terminology and methods of analysis essential to an understanding of economic processes and problems. The work of the course centers around the four dominant phases of economics; consumption, production, exchange, and distribution, Three units.

1B. Principles of Economics. Continuation of Economics 1A. Three units.

100. Principles of Statistical Method. The object of this course is twofold: Firstly, it presents the techniques of elementary statistical analysis as tools appropriate for the study of quantitative data. Secondly, it considers the logic of statistical induction and the inherent limitations imposed thereon by the nature of the data themselves. The subject matter includes averages, variation, elementary ideas of index numbers, simple linear correlation and elementary time series analysis. Three units.

100C. Laboratory. A laboratory workshop in which the material developed in Business Statistics 100 is applied to problems and business cases. One unit.

120. Public Finance and Taxation. A course devoted to the analysis of public expenditures and public revenues. In the case of expenditures, particular emphasis will be placed on the change in the qualitative nature of those expenditures when commanded by government and the effects of such changes on the private economy. The section of the course devoted to public revenue will consider taxes peculiar to the United States in such a way as to determine the ultimate bearers of the burden of those taxes. Three units.

121. Corporate Finance. An introduction to the problems surrounding the procurement of funds needed for carrying on a modern business enterprise. Topics covered will include: financial organization of modern industry; the instruments of enterprise finance; promotion and sale of securities; financing of operations of the going-concern; problems of financing growth and expansion; financial readjustments. Three units.

122. Money and Banking. An analysis of the fundamental concepts of money. The discussion of money will be followed by an analysis of commercial banking principles. Emphasis will be placed upon the commercial bank as a "manufacturer of the means of payment." The discussion of commercial banking will, of necessity, entail consideration of the philosophy, technique and policy of central banking. Mindful of the fact that the United States possesses a monetary and banking system peculiar to itself, consideration will be given to "money of the United States," the National Banking System and the Federal Reserve System, whenever possible or necessary. Three units.

124. Investments and Investment Institutions. As Corporation Finance deals with the problems of business management devising ways and means of procuring funds for enterprise operations, so this course will deal with the market for funds as viewed by those individuals and institutions who are offering those funds in that market. Therefore, among the subjects to be considered will be the nature of the money market; institutions operating therein; and because of the significance of the presence of government, government control thereof. It will be presumed that a student electing this course possesses a working knowledge of commercial and central bank operations and of the fundamentals of enterprise finance. Three units.

126. Business Cycles. An introduction to the analysis of fluctuations in the level of general business activity. Specific theoretical formulations explaining business cycles will be discussed. This will be followed by a discussion of the history of business fluctuations, the problems of control and the attainment of stability. Three units.

128. Business Forecasting. This course is concerned with the techniques of forecasting business fluctuations. Topics discussed are the recognition of forecasting of business; forecasting at the national, industry, and company levels; forecasting for geographic areas and in time; and long, intermediate and short term intervals of forecasting. Methods of

forecasting examined are the opinion, historical, correlation, multiple factors, and component elements. Experience in forecasting is gained by the application of the several methods of forecasting to published business data which respond differently to changing economic conditions. The interrelationship of economic activity is stressed. Three units.

128C. Business Forecasting Laboratory. A laboratory workshop in which the material developed in Business Forecasting 128 is applied to problems and business cases. One unit.

150. Labor Problems. Lectures and class discussion on (1) the problems: insecurity, wages and income, hours and work periods, substandard workers, industrial autocracy; and (2) attempts to solve them: by employees, by employers, by government. Three units.

158. Government and Business. This course deals with the general problem of government regulation of business as exercised especially by the Federal authority. It analyzes the regulation of Trusts and Business Combines; Business Practices; Production; Labor; Agriculture; Public Utilities, and the like. It investigates the government's regulatory machinery and enters into an analysis of methods whereby competition is either restricted or encouraged, and other government's economic objectives are achieved. Three units.

170. Problems of American Agriculture. Lectures and class discussions on such farm problems as soil conservation, irrigation and reclamation, farm credit, price supports, foreign trade and agriculture, migratory labor and family farms. These and other problems will be viewed from the point of view both of the farm community and of general public policy. Three units.

183. Transportation. An economic analysis of the principle forms of commercial transportation in the United States. The particular problems of rail, water, motor, air, and pipe line transportation are considered. Three units.

Engineering

1. Industrial Electronics. The purpose of this course is to provide practicing electricians, technicians and plant engineers with a background in industrial electronics. The course will include Vacuum Tubes and their characteristics, Circuit Elements, Meters and the Oscilloscope, Rectifier Circuits, Amplifiers, Phase Shift circuits, Timing and A-C Control Circuits, Motor Control, and A-C Relays. Two units.

2. Industrial Electronics. A continuation of Industrial Electronics 1. Two units.

3. Advanced Industrial Electronics. Basic and advanced theory of electronic circuits as well as detail specific industrial electronic devices. Two units.

4. Advanced Industrial Electronics. A continuation of Advanced Industrial Electronics 3. Two units.

English

1E. Effective Communication. Seminar in the principles of "good English." Everyday problems of English will be discussed in relation to informal and formal speech and writing. By emphasizing the potentialities of Modern English rather than the prohibitions of the older grammarians, this course is aimed at giving the mature student confidence in his use of spoken and written language. Attention will be centered especially on the best current practice in business communications. Three units.

2E. Effective Communication. Continuation of 1E, with emphasis on the best current practice in business communications. Three hours lecture. One semester. Three units.

3E. Efficient Reading. The purpose of this course is to improve reading ability by increasing speed, comprehension, and critical power. The method of instruction, based on the need of business and professional people for faster and clearer communication, encourages the development of reading skills through principles of rhetoric and psychology. Two units.

Philosophy

16E. Ethics. A survey of General and Applied Ethics. This emphasizes the practical application of ethical principles to personal, social, domestic, political, and business problems. Three units.

17P. Problems of Philosophy. A course designed to introduce the student to philosophy by discussion of some of the fundamental problems that have always been of interest to mankind. What is knowledge? What is truth? Can we be certain that our knowledge is true? How does the mind make contact with the external world? How trustworthy is human reason? How does the human mind function in acquiring and organizing knowledge? Two units.

20P. Philosophy of Being. The problem of the one and the many, the structure of being, the transcendental order, the four causes, and God as the cause of being. The being and nature of God in so far as they are knowable by natural reason. Two units.

22P. Philosophical Psychology. The philosophy of man. An analysis of the nature and operations of man so far as these natures and operations can be discovered by the use of philosophical principles and empirical observations. The course will conclude by placing philosophical psychology in the hierarchy of sciences and by indicating the importance of the subject in the field of ethics and the social sciences. Two units.

Public Speaking

1E. Public Speaking. Seminar in Composition and Delivery based on Modern Theory and Practice. This course is aimed at building up confidence and ease in the communication of ideas to an audience. Classroom work will be mainly criticism of students' speeches: from these criticisms the principles of composition and delivery will be illustrated and explained. Approximately ten speeches will be required from each student each semester. Two units.

THE OBSERVATORY

ASTRONOMICAL, METEOROLOGICAL AND SEISMOLOGICAL OBSERVATORY

John Anthony Weber, S.J.
Director

The Astronomical and Meteorological Observatories were under the immediate direction of the late Father Ricard, known throughout the country as the "Padre of the Rains." In recognition of the work of Father Ricard, the Knights of Columbus of California built the Knights of Columbus Ricard Memorial Observatory, which provides the facilities and equipment for a much more comprehensive investigation of astronomical and meteorological problems, and a correspondingly greater service to the country.

Through its Seismological Station the University is a member of a chain of seismological stations maintained by the Jesuits throughout the world, and has been a pioneer on the Pacific Coast in the recording and observation of seismological disturbances, as well as in the study of their causes.

The University Seismological Station contains an underground passageway which connects the vault of the Seismic Station to the Observatory. The Seismic Station contains an 80Kg Wiechert Horizontal and Vertical Seismograph, three Galitzin Seismographs, especially designed for local earthquakes. The Observatory likewise houses the other necessities of a station of this type, such as battery rooms, photographic dark rooms and offices where the records are kept for study and reference.

Of special prominence, is the work which has been done in long range weather forecasting through a study of sun spots. This line of study was instituted by the late Father Ricard. He built up a large mass of data in this regard, so that the records and observations at the University are perhaps among the most complete of any in the country. Monthly forecasts are sent out regularly from the Observatory.

DE SAISSET ART GALLERY AND MUSEUM

Joseph J. Pociask, S.J.
General Director

Josef Hilpert, Kt. C., P.C.C.
Director

Henry L. Walsh, S.J.
Curator

William G. Burman, S.J.
Curator

The deSaisset Art Gallery and Museum Building is the generous gift of the late Isabel de Saisset. Besides being a memorial to her famous Pioneer California family, it houses the paintings of her artist brother, Ernest, as well as the family collection of silver, jewelry, and spanish shawls. Also included in the permanent collection of the Art Gallery are

the miniatures and portraits of Dr. Josef Hilpert, the McClatchy water-color collection of California Wild Flowers, the "Symbolic Portraiture" of Henry Edmiston, and other **objets d'art** donated to the University by Alumni and friends.

The Art Gallery occupies the entire first floor and one large room of the lower floor of the building. This includes three art-exhibit rooms as well as a larger exhibition hall where lectures, musicales, and art films are given. Besides these features, changing exhibitions during the year bring the fuller and deeper meaning of Art into the experience of the student and general public.

The Mission and Galtes Museum occupy three exhibit rooms of the lower floor. The Mission collection comprises the Mission Fathers' books, vestments, historic implements, and many documents and artifacts of early California. The Galtes collection contains notable mineralogical and archaeological specimens from all parts of the world, and is particularly valuable for California mining specimens and American ores.

ARCHAEOLOGICAL AND HISTORICAL RESEACH COMMITTEE

This Committee, appointed by the President and approved by the Board of Trustees of the University, has two principle functions: the classification, display, and loan of items in the University Galtes and Mission Collections; and the acting as directors of student field teams in archaeological, mineral and paleontological research. This latter function includes instruction for students in identification and classification of artifacts, and the development of University collections.

UNIVERSITY RESEARCH

Joseph C. Diebels, S.J.

Chairman

The Office of University Research is an agency through which the various departments of the University may undertake studies of basic and practical problems relating to their respective fields. The Office will make arrangements with private and public organizations or individuals desiring to have such studies made in matters of business, engineering, law, science, history, etc., where the special talents and facilities of the University can be made available. Faculty members, senior students, and ultimately graduate students, will have opportunities to work on these research problems in their particular areas of specialization.

Requests for information about the services and facilities of the Office of University Research should be addressed to the Chairman, at the Administration Building on the University campus.

DEPARTMENT OF UNIVERSITY DEVELOPMENT

A department of University Development has been established at Santa Clara to provide long-range stability for the future growth of the University. Its functions are those of public relations, information, and institutional planning and financing. It is set up as a part of the administrative structure in accordance with the practice of other modern universities.

Conservative administration and careful management of funds have enabled the University to survive the shocks and dislocations of recent years with a balanced budget, but this has so far been achieved only through stringent economies and by virtue of the fact that the University enjoys a "living endowment" of several million dollars valuation in the donated services of the Jesuit Community. Increased expenses have resulted, however, from the addition of many lay faculty members necessitated by enrollment expansion and specialized instructional requirements.

A future of continuing fluctuations in enrollment is faced by Santa Clara along with all other universities. If privately supported universities such as Santa Clara are to survive they must have the financial support of loyal alumni and friends. The Department of Development has been established to further these ends and provide technical service in the work of balancing a short-term program to meet immediate needs in relation to the long-range planning of the University as it "builds for a second century."

PLACEMENT OFFICE

Helen E. Ferris

Director

The University through its placement office and faculty aids its students in securing promising business openings, although it cannot, of course, guarantee employment. However, because there has been a constant demand for graduates of the University of Santa Clara, students who do satisfactory work have had little difficulty securing permanent positions upon their graduation. There is no charge for this service.

The Placement Office is located in the Administration Building and remains in operation during the entire year. All students, regardless of major, are urged to take advantage of the facilities of this office, which has been organized and is being maintained for the students of the University of Santa Clara.

DEGREES CONFERRED

June 12, 1954

HONORARY DEGREE
Doctor of Laws
James Francis Twohy, A. B.

Degrees in Course

BACHELOR OF LAWS

Edward Joseph Allen, B.S.
Daniel A. Anderson, B.S.
Charles Victor Caillat, A.B.
James John Delaney
James T. Kelly, Jr., B.S.C.
Thomas A. Kennelly, B.A.
Stanley F. Leal, B.S.C.
John Smith McInerny, B.S.
Alan Robert Porterfield
Vincent C. Sevely, B.S.
David Eason Smith
Vincent Daniel Todisco, A.B.
Don A. Welsch, B.A.

BACHELOR OF ARTS
And
BACHELOR OF SCIENCE

BIOLOGY

Edwin Gregory Abate
Richard Ellsworth Akin
Joseph W. Ball
James Francis Flanagan, Jr.
Charles B. French
*William Joseph Hennessy
**William Joseph Kennedy
Andrew James Lewis
Richard Anthony O'Day
Frederick Rudolph Trent
Leslie Ray Webber

CHEMISTRY

William Edward Hartung
Daniel Joseph McNally
Donald Louis Ornellas

ECONOMICS

William Ansley Allen, Jr.
Thomas A. Black
**Amedee Albert Chanteloup, Jr.
Carmen John Citrigno
Donald Kennedy Cole
Richard Thornton Holland
Henry Leonard Machado
Robert Charles McGlinchey
William Joseph McPherson
Herbert Joseph Schoenstein
John Joseph Stanton
**Alfred Charles Walsh, Jr.

ENGLISH

Richard Charles Briggs
Gerald Patrick Clines
Edward Earl Curran, Jr., B.A.
Thomas Francis Doyle
Thomas John Fennone, B.A.
William Joseph Garrity, B.A.
*Carroll Clay Kearley, B.A.
Douglas M. Lowell
Jack Hugh Peters
Richard Felix Picano
James M. Stuart
August R. Suhr, Jr.

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*Cum laude
**Magna cum laude

HISTORY

Donald Victor Brown
William Francis Caro, B.A.
Robert Eugene Enright
Francis William Hare
Jess Michael Payan
Joseph L. Ramona
Richard Rodney Roderick
**John Bernard Vasconcellos, Jr.
James M. Young

PHILOSOPHY

Thomas J. Flynn, Jr. B.A.
*Ramon Seraphin Lelli
William Joseph Morris
Peter E. Tiernan, Jr., B.A.

POLITICAL SCIENCE

Donald A. Benedetti
Joseph Arthur Berg, Jr.
Edward Lewis Bispo
Dominic Lawrence Cortese
Richard Edward Crompton
William Joseph Delucchi
Alfred Diaz
Leslie Richard Edwards
Thomas Macbeth Edwards
Victor Ronald Gile
John Philip Gilligan
Francis Clifford Jordan
**William R. Kilty
Edmund Thomas King, II
George A. Martin, Jr.
Lawrence Arthur Menard
William T. Olson, Jr.
Milton N. Pavlina
Leland Frederick Rianda
James Peter Rowe
*Richard B. Sanguinetti
*Richard Henry Scholz
Keith R. Sherman
C. Michael Smith
John R. Smyth
Benjamin Harold Zuppan, Jr.

BACHELOR OF CIVIL ENGNEERING

Alan Starr Armstrong
Albert O. Bertagna
Thomas Galen Bertken
Allen C. Codiroli
George Chris Fotinos
Charles Frederick Leonhardt, Jr.
James Joseph Putkey
Edgar Laurence Schott
*John E. Siegfried
J. Leland Harris Taylor
Walter Edward Walsh

BACHELOR OF ELECTRICAL ENGINEERING

Eugene Robert Anderson
William George Binckley
Donald James Birmingham
Raymond Leo Blanke
Allen Bailey Chase
Louis Maurice Gairaud
Charles Edward Luchessa
Frank G. Perdichizzi
Donald J. Piazza
Eugene Edward Revetagat
**Otto Anthony Schleich
Wilson Kwong Sung Wong

BACHELOR OF MECHANICAL ENGINEERING

John George Berger
David Laurence Braun
Albert Philip Cebrian
Bernard J. Grotz, Jr.
Ferdinand A. Hall, Jr.
Richard Joseph Kern
Jack Dwyer Kuehler
Joseph Vincent McCargar
Clifford Francis McNamara
Ralph Eugene Neary
Paul Raymond Nussbaum
Charles Richard Sebastian

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*Cum laude
**Magna cum laude

BACHELOR OF SCIENCE IN COMMERCE

Maurice Murray Ackerman
John Ralph Arena
Robert Francis Bagley
Ronald H. Banister
Francis L. Bengtson
Richard Philip Berry
Robert Albert Bonnel
Edward Michael Brome
Joseph Boyd Clark
Richard Elliot Clark
Clarence Joseph Cravalho
Charles Joseph Crotty
William Andrew Di Gleria
Denis Francis Donovan, Jr.
Robert Ernst Draklich
Robert B. Dress
Hubert Anthony Fahrner
David Joseph Farley
Kenneth James Fay
William G. Filice
Brian Eugene Gagan
Creaghe Henry Gordon
Walter E. Hartman, Jr.
William B. Holland
Hugo Louis Isola
Fred Bert Ithurburn
Robert H. Johnson
Joseph Philip Donald Kern
Lucas A. Lanz
Robert Russell Laubacher
Theodore Arthur Loer
Ernest O. McCormick, III
Joseph A. Mendoza, Jr.
Gary Louis Menzemer
Edward Charles Mirch
Charles Edward Moran
Earl Jacob Morgan
Francis Joseph Murphy
Robert William Muxlow, Jr.
Jerry Stanley Nobriga
John Edward O'Brien
William Edward O'Brien
Daniel James O'Donnell
Remo Phillip Ottone
Clarke V. Parsons
Richard I. Pera
*John Carl Petroni, Jr.
Donald Dean Pretari
Charles A. Quinn, Jr.
Kenneth J. Ravizza
John Francis Reynolds
Luke A. Scurich
Henry McGinn Shea
Anthony F. Silveira
Charles C. Stevens, Jr.
Mario E. Tarabini
Donald Stephen Tarvid, Jr.
David Joseph Toomey
Albert Y. Torres
Donald J. Vaughn
*William E. Weseloh
William E. Wilkinson
Richard Douglas Wood

ALPHA SIGMA NU

The following graduates are members of Alpha Sigma Nu, the National Jesuit Honor Society:

Amedee A. Chanteloup
Bernard J. Grotz
James T. Kelly, Jr.
William J. Kennedy
John C. Petroni
Otto A. Schleich
John E. Siegfried
David E. Smith
John B. Vasconcellos, Jr.
Alfred C. Walsh
William E. Weseloh

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*Cum laude

STUDENTS RECEIVING COMMISSIONS AS SECOND LIEUTENANTS IN THE UNITED STATES ARMY RESERVE CORPS, JUNE 6, 1954

Richard E. Akin
Eugene R. Anderson
†John R. Arena
Donald A. Benedetti
†Francis L. Bengtson
Richard P. Berry
Thomas G. Bertken
William G. Binckley
†Donald J. Birmingham
*Edward L. Bispo
Thomas A. Black
Ray L. Blanke
Robert A. Bonnel
†David L. Braun
Edward M. Brome
William M. Brunkow
William F. Caro
Amedee A. Chanteloup
Allen B. Chase
*Joseph B. Clark
*Donald K. Cole
Dominic L. Cortese
Clarence J. Cravalho
Edward E. Curran
Alfred Diaz
Denis F. Donovan
Thomas F. Doyle
Robert E. Draklich
Leslie R. Edwards
Robert E. Enright
Anthony J. Escover
*Hubert A. Fahrner
*David J. Farley
†Kenneth J. Fay
William G. Filice
James F. Flanagan, Jr.
*George Fotinos
Robert G. George
Don A. Giampaoli
William J. Gil
John P. Gilligan
Creaghe H. Gordon
Walter E. Hartman, Jr.
**William E. Hartung
William B. Holland
Hugo L. Isola
Robert H. Johnson
Francis C. Jordan
James T. Kelly, Jr.
Joseph P. Kern
Edmund T. King
†Jack D. Kuehler
Robert R. Laubacher
Stanley F. Leal
Andrew J. Lewis
*Henry L. Machado
†George A. Martin
*Ernest O. McCormick
William J. McPherson
Lawrence A. Menard
†***Joseph A. Mendoza
Gary L. Menzemer
*Edward C. Mirch
*Charles E. Moran
Francis J. Murphy
Robert W. Muxlow
Ralph E. Neary
†Jerry S. Nobriga
William E. O'Brien
*Daniel J. O'Donnell
†Donald L. Ornellas
Jess M. Payan
Richard I. Pera
Frank G. Perdichizzi
Charles A. Quinn
Kenneth J. Ravizza
William H. Reilly
John F. Reynolds
Leland F. Rianda
Richard R. Roderick
†James P. Rowe
†Richard B. Sanguinetti
Ralph D. Scalzo
Herbert J. Schoenstein
†Richard H. Scholz
Vincent C. Sevely
Henry M. Shea
Charles M. Smith
John R. Smyth
James M. Stuart

†Mario E. Tarabini
Peter E. Tiernan
†David J. Toomey
Albert Y. Torres
†John B. Vasconcellos, Jr.
Donald J. Vaughn
Alfred C. Walsh
†William E. Wilkinson
Robert G. Winsor
Richard D. Wood
Peter P. Zasso.
*Benjamin H. Zuppan

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*Students commissioned at conclusion of Summer Camp, 1954.
**Commissioned in USAFR.
†Distinguished Military Graduates.
†***Distinguished Military Graduate, Commissioned in Regular Army.

EXTRAORDINARY PRIZES

Academic Year
1954

The Nobili Medal, founded by Joseph A. Donohoe, Esq., for the student deemed first in morals, obedience, and application to study was awarded to John B. Vasconcellos, Jr.

Next in Merit: Albert O. Bertagna, Amedee A. Chanteloup, Jr., William J. Kennedy, John C. Petroni, Jr., William E. Weseloh.

The Silver Medal, for the resident student distinguished for conduct and application, was awarded to William J. Kennedy.

Next in Merit: Charles B. French, Ramon S. Lelli, Otto A. Schleich, Alfred C. Walsh.

The Silver Medal, for the non-resident student distinguished for conduct and application, was awarded to Peter E. Tiernan.

Next in Merit: William C. Filice, William J. Hennessy, John E. Siegfried.

The Ryland Prizes, for excellence in the annual Ryland Debate, were awarded as follows: first prize to Arthur H. Hayes, Jr., second prize to Peter E. Tiernan, third prize to Frank J. Schober.

The Orella Prize, founded by Dr. and Mrs. Firmin R. Orella, to be given to the senior student in the Department of Science who attained the highest average in scientific subjects during the junior and senior years, was awarded to William J. Kennedy.

The Handlery Prize, founded by Mrs. Rose Handlery in honor of her son, Raymond, of the Class of 1934, to be given to the senior student who contributed most to the success of any of the University student publications, was awarded to Alfred C. Walsh, Jr.

The Chargin Prize, in honor of Mr. and Mrs. Joseph A. Chargin, Sr., to be given to the senior student in the College of Law who maintained the highest class average throughout his law course, was awarded to Charles V. Caillat.

The Business Administration Prize, an engraved key given by the Business Administration Association to the senior in the College of Business Administration who shall be deemed to have contributed the most to the success of the College of Business Administration, was awarded to John C. Petroni, Jr.

The Delta Sigma Pi Scholarship Key, an engraved key given by the International Commerce Fraternity, Delta Sigma Pi to the senior in the College of Business Administration with the highest scholastic average, was awarded to William E. Weseloh.

The Finance Medal, an engraved silver medal and a year's subscription to The Wall Street Journal given annually to the senior with the highest scholastic average majoring in Finance in the College of Business Administration, was awarded to William A. DiGleria.

The Owl Prize, founded by the Directors of the former College Magazine, "The Owl," to be given to the one most successful in the oratorical contest, was awarded to Arthur H. Hayes, Jr.

The Dramatic Art Prize, founded in honor of Mr. William H. Leahy by his wife and by his brother, Mr. James Leahy, for the winner of the Dramatic Art Contest, was awarded to Arthur H. Hayes, Jr.

The Redwood Prize for the best essay on an historical subject, was awarded to John R. Smyth.

Next in Merit: Charles B. French, David C. Little, Peter E. Tiernan.

The Religion Prize, given by the President of the University, to be given to an upper division student, for proficiency in religion, was awarded to Joseph R. Panetta.

The McCann Prize, founded in honor of Daniel B. McCann, to be given for the best short story, was awarded to James W. Trent.

The San Jose Civic Club Prizes, presented by a group of San Jose business and professional men to encourage interest in the study of the Italian language and culture, to be given to the students most diligent in the study of Italian were awarded as follows: Henry S. Morello and Stephen G. Olivo.

The Chemistry Medal, presented by The American Institute of Chemists, given to the senior majoring in Chemistry, for scholastic achievement, was awarded to Donald L. Ornellas.

REGISTER OF STUDENTS

1954-1955

Abbreviations Used

A&S— College of Arts and Sciences
B.A.— College of Business Administration
Engr.— College of Engineering
Ev.— Evening Division
Fr.— Freshman
Jun.— Junior
Sen.— Senior
Soph.— Sophomore
Spec.— Special Student
Sub-Sen.—Sub. Senior

Abbott, Gordon G.	Ev. B.A.	Agnew
Abrahamson, Richard S.	Sen. A&S	San Francisco
Abreu, Ronald P.	Soph. B.A.	Rio Vista
Abruzzini, Lawrence L.	Sen. A&S	Gilroy
Achille Hector A.	Fr. B.A.	San Carlos
Adamo, John C.	Soph. A&S	Napa
Adelson, Morris B.	Ev. B.A.	Santa Clara
Adler, Charles R.	Fr. A&S	San Luis Obispo
Ahlers, Karl L.	Fr. Engr.	Managua, Nicaragua
Aiello, Frank E.	Soph. A&S	San Jose
Akin, Edward P.	Jun. Engr.	Placerville
Akin, William P.	Ev. B.A.	San Jose
Aleo, Philip C.	Ev. B.A.	Los Altos
Allan, Edward V.	Jun. A&S	San Jose
Allen, Edmund P.	Fr. A&S	Seattle, Washington
Allen, Edward V.	Sen. A&S	Yuba City
Allison, James E.	Sen. Engr.	Atherton
Anchondo, William A.	Jun. B.A.	Tijuana, Mexico
Anderson, Robert A.	Soph. Engr.	Chicago, Illinois
Anderson, Sedric E.	Sub-Sen. Engr.	San Jose
Andrade, Anthony L.	Soph. B.A.	Honolulu, Hawaii
Andrade, Louis E.	Fr. B.A.	San Jose
Andrade, Richard F.	Soph. A&S	Newark
Andresen, Erling P.	Soph. Engr.	Oslo, Norway
Andrini, Lawrence F.	Jun. B.A.	San Francisco
*Angeli, John J.	Soph. A&S	San Leandro
Antony, Joseph G.	Fr. A&S	Medford, Oregon
Arancio, Jack S.	Sen. A&S	Monterey
Arioto, Anthony G.	Sub-Sen Engr.	Stockton
Arnautou, Philip P.	Jun. A&S	Daly City

Asimos, George W.	Sub-Sen. Engr.	San Francisco
Atkins, Thomas C.	Soph. A&S	Los Altos
Aubert, Peter A.	Ev. B.A.	Sunnyvale
*Avellar, Gilbert R.	Spec. A&S	San Leandro
Azevedo, Eugene M.	Soph. A&S	Modesto
Azevedo, Ronald J.	Fr. B.A.	Santa Clara
Backers, Carl H.	Spec. Engr.	No. Platte, Nebraska
Bacon, Donald C.	Jun. B.A.	Burlingame
Bacon, Robert N.	Ev. B.A.	San Jose
Badella, George W.	Sen. A&S	Florin
Bailey, Robert D.	Soph. Engr.	Mt. View
Baiocchi, Gerald N.	Jun. B.A.	San Jose
Baiza, Noemi E.	Ev. B.A.	San Jose
Baker, John M.	Soph. A&S	Palo Alto
Baker, LeRoy M.	Soph. A&S	Santa Clara
Balberde, Alexander, Jr.	Soph. Engr.	Honomu, Hawaii
Baldacci, Paul R., Jr.	Sen. A&S	Akron, Ohio
Ball, Hugh D.	Jun. B.A.	Albany
Banks, Albert L.	Fr. A&S	Santa Ana
Bannan, Thomas A.	Fr. Engr.	San Marino
Bara, Stanley F.	Ev. B.A.	Campbell
Bardini, Armando J.	Ev. B.A.	Los Altos
Bargeboer, Pierre N.	Soph. Engr.	Lima, Peru
Barnes, Fred R.	Ev. B.A.	Cupertino
Barraza, David A.	Jun. Engr.	San Jose
Barrett, John C.	Fr. Engr.	Seattle, Washington
Barry, James B.	Fr. A&S	San Marino
Barth, Hugh A., Jr.	Sub-Sen. Engr.	San Jose
Bartoo, Russell L.	Sen. Engr.	Altaville
Basinet, Richard F.	Soph. Engr.	Alameda
Bates, John F.	Fr. A&S	Irvington
Batinich, Edward N.	Ev. B.A.	San Jose
Baumann, Donald P.	Jun. Engr.	Tokyo, Japan
Beall, Edwin S., Jr.	Ev. B.A.	San Jose
Beam, Robert A.	Ev. B.A.	Santa Clara
Bean, Barbara E.	Ev. B.A.	San Jose
Bean, Ernest L.	Ev. B.A.	Redwood City
Bean, Lois M.	Ev. B.A.	Redwood City
Bean, Marshall N.	Law I	San Jose
Bean, Nancy L.	Ev. B.A.	Redwood City
Beaulieu, John A.	Jun. B.A.	Portland, Oregon
Beaven, Herbert R., Jr.	Soph. Engr.	Glendale
Bedinger, Leslie K.	Ev. B.A.	Mt. View
Bellaria, Philip P.	Fr. B.A.	Hayward
Belt, Juanta E.	Ev. B.A.	San Jose
Bennati, Isma E.	Ev. B.A.	San Jose
Bennett, Ellery A., Jr.	Ev. B.A.	Redwood City
Berg, Robert J.	Jun, A&S	Ojai
Berger, Peter W.	Soph. B.A.	Pasadena
Berman, Peter P.	Fr. B.A.	Los Gatos
Bernadicou, Louis A.	Jun. B.A.	Stockton
*Bernadicou, Paul J.	Jun. A&S	Stockton
Bernie, James J.	Jun. A&S	San Francisco
Bertetta, Fred C.	Fr. A&S	Daly City

Bertolani, Victor A.	Jun. A&S	Sacramento
Bertolucci, Alphonse E.	Soph. B.A.	St. Helena
Berwick, Arnold	Law II	Los Gatos
Besozzi, Robert A.	Jun. A&S	San Francisco
Bianco, Philip S.	Sen. A&S	Visalia
Bielstein, Lawrence E.	Fr. B.A.	Atherton
Biernat, Stanley A.	Ev. B.A.	Sunnyvale
Bihn, Michael J.	Ev. B.A.	Campbell
Birmingham, John M.	Fr. B.A.	Beverly Hills
Birmingham, Kevin M.	Fr. A&S	Medford, Oregon
*Bishop, Emil L.	Jun. A&S	Huntington Park
Blach, Donald C.	Sen. B.A.	Los Altos
Blackford, Walter G.	Ev. B.A.	San Jose
Blaine, J. Frank	Ev. B.A.	Campbell
Blake, Robert L.	Law III	Santa Clara
Blasquez Augustine	Ev. B.A.	Sunnyvale
Block, Delbert A.	Fr. B.A.	San Jose
Boardway, Marie H.	Ev. B.A.	Santa Clara
Bocci, Donald R.	Fr. A&S	Daly City
Bodam, Esther V.	Ev. B.A.	San Jose
Bodine, Charles M.	Soph. Engr.	Lindsay
Boessow, Daniel S.	Soph. Engr.	Sacramento
Bohlander, Jerome E.	Soph. Engr.	Chico
Bohren, William C.	Fr. Engr.	San Francisco
Boice, Norman D.	Soph. Engr.	Gresham, Oregon
Boland, Martin J.	Ev. B.A.	Santa Clara
Bolton, Robert A.	Law II	Piedmont
Bond, William H.	Ev. B.A.	San Jose
Bondi, Michael J.	Soph. Engr.	San Jose
Boranian, Edwin	Ev. B.A.	Sunnyvale
Bordallo, Rodney B.	Fr. B.A.	Tamuning, Guam
Borelli, Frank P., Jr.	Jun. A&S	Hollister
Borello, Silvio E.	Law III	Sunnyvale
Borgerding, Charles A.	Soph. A&S	LaMesa
Boscacci, Everett M.	Fr. A&S	Stockton
Boscacci, Robert E.	Ev. B.A.	San Jose
Boudreau, John E.	Sub-Sen. Engr.	Long Beach
Bouska, Richard C.	Soph. Engr.	Arbuckle
Bowe, James F.	Sen. A&S	Santa Clara
Bowen, James G.	Sen. B.A.	Denver, Colorado
*Bowman, Gary R.	Fr. A&S	Modesto
Bowman, Thad L.	Soph. A&S	San Jose
Breen, Peter A.	Fr. A&S	Hollister
Breen, Thomas P.	Soph. A&S	Hollister
Bresniker, Joseph L.	Soph. A&S	Hayward
Brethauer, Peter D.	Jun. B.A.	Oakland
Brewer, Paul R.	Fr. A&S	Yuba City
Brewer, Robert W.	Ev. B.A.	Campbell
Briggs, Robert A.	Jun. A&S	San Jose
Brinkman, Peter F.	Soph. B.A.	Detroit, Michigan
Brisbois, James P.	Sub-Sen. A&S	San Mateo
Bristol, John M., Jr.	Soph. Engr.	Albuquerque, New Mexico
Britschgi, Brenton C.	Soph. B.A.	Redwood City
Britschgi, Robert H.	Sen. Engr.	Redwood City

*Brown, James F.	Soph. A&S	San Francisco
Brown, Robert R.	Fr. Engr.	San Jose
Brown, William F., Jr.	Sen. A&S	San Jose
Bruggeman, Donald A.	Ev. B.A.	San Jose
Bruni, Arnold V.	Jun. B.A.	San Jose
Brunkow, William M.	Sen. Engr.	Portland, Oregon
Bruno, Victor A., Jr.	Fr. B.A.	Pasadena
Bryant, Daniel L.	Jun. A&S	Bridgeport
Bryson, David H.	Jun. A&S	Denver, Colorado
Buckley, Robert G.	Fr. A&S	Denver, Colorado
Buckley, Thomas C.	Fr. A&S	Los Altos
Buitrago, Eugenio, Jr.	Ev. B.A.	Los Altos
Bukow, George J.	Fr. Engr.	St. Helena
Buntich, Mladen	Fr. Engr.	San Francisco
Burzio, Renalto J.	Fr. Engr.	San Jose
Burke, Lawrence P.	Jun. Engr.	Plymouth
Burke, Redmond J.	Soph. A&S	Grass Valley
Burke, Richard H.	Ev. B.A.	Los Gatos
Burnham, Raymond F.	Sen. Engr.	San Leandro
Burns, Vincent T., Jr.	Fr. A&S	Pasadena
Burns, Walter L.	Fr. Engr.	Elko, Nevada
Burriesci, Frank C.	Law II	San Jose
Burroughs, Jerome L.	Soph. Engr.	Dubuque, Iowa
Busacca, Paul G.	Soph. A&S	Fresno
Buschini, John A.	Sub-Sen. A&S	San Mateo
*Bush, Bernard J., Jr.	Jun. A&S	Garberville
Bush, Gerald W.	Fr. A&S	Garberville
Bush, John E.	Jun. Engr.	Palo Alto
Bush, Robert C.	Sub-Sen. Engr.	Palo Alto
*Bush, Robert M.	Fr. A&S	Garberville
Busher, Paul L.	Jun. Engr.	San Francisco
Butler, William C.	Ev. B.A.	Los Altos
Buttignol, Mario J.	Soph. B.A.	San Mateo
Byrne, Ramon L.	Ev. B.A.	San Jose

*Cahalan, Patrick J.	Soph. A&S	San Jose
Cain, Raymond E.	Ev. B.A.	San Jose
Cala, Joseph C.	Fr. B.A.	Burlingame
Caldwell, Clare R.	Jun. B.A.	Santa Rosa
Cali, Alfred J.	Fr. B.A.	Cupertino
Callahan, John R.	Jun. B.A.	Palo Alto
*Callahan, Michael A. P.	Fr. A&S	Hollywood
Calvo, Paul M.	Fr. B.A.	Agana, Guam
Camara, Ernest R.	Ev. B.A.	San Jose
Camilli, Richard L.	Sen. B.A.	Santa Rosa
Campagna, Thomas F.	Soph. B.A.	San Jose
Campbell, George R.	Fr. A&S	San Francisco
Campbell, Hugh A.	Fr. Engr.	Santa Rosa
*Campbell, Peter A.	Soph. A&S	San Francisco
Campbell, Willard R.	Law III	San Jose
Campi, Anthony V.	Fr. Engr.	San Francisco
Campion, Jeremiah E.	Sen. A&S	Oakland
Campisi, Richard S.	Soph. A&S	San Jose
Campo, Frederick W.	Ev. B.A.	San Jose
Cancilla, Michael A.	Fr. A&S	San Jose

Cannon, George W.	Fr. Engr.	Berkeley
Canter, Anna Lee	Ev. B.A.	Mt. View
Cantoni, Charles W.	Soph. Engr.	San Jose
Caputo, Richard P.	Law II	San Jose
Caralli, Carlo F.	Soph. A&S	San Jose
Caratti, John F.	Jun. A&S	Livermore
Carey, Thomas G.	Soph. B.A.	Antioch
Carleton, Robert J.	Fr. Engr.	Lafayette
Carlson, Fred O.	Sen. B.A.	Van Nuys
Carmassi Herman L.	Jun. B.A.	San Francisco
Carmichael, Harry B., Jr.	Ev. B.A.	Sunnyvale
Carmichael, Ronald L.	Jun. Engr.	San Jose
Caro, Robert V.	Fr. A&S	San Jose
Carr, Edward F.	Fr. Engr.	Los Angeles
Carr, Raymond C.	Ev. B.A.	Campbell
Carral, Francisco D.	Sen. B.A.	Mexico City, Mexico
Carroll, Michael D.	Soph. A&S	Beverly Hills
Carroll, Terence A.	Soph. B.A.	Martinez
Carroll, William A.	Jun. A&S	San Francisco
Cartelli, Anthony	Soph. Engr.	Santa Clara
Carter, Perry L.	Sen. A&S	Long Beach
Cartmell, Stanley E.	Ev. B.A.	Saratoga
*Casey, Donald A.	Spec. A&S	La Habra
Cassidy, George H., Jr.	Ev. B.A.	San Jose
*Castagnola, Lawrence A.	Jun. A&S	Alhambra
Castellucci, Robert J.	Fr. B.A.	Los Banos
Caswell, Robert D.	Fr. B.A.	Fresno
Cattich, Marylou F.	Ev. B.A.	Redwood City
Caveney, Robert D.	Jun. Engr.	San Francisco
Centis, James R.	Soph. A&S	Redwood City
Cesano, James, Jr.	Sen. B.A.	Palo Alto
Chambers, William S.	Jun. A&S	Sacramento
Chapman, Alfred S.	Jun. A&S	So. Pasadena
Chapman, William R.	Soph. Engr.	So. Pasadena
Chase, Vernon W., Jr.	Sen. A&S	So. Pasadena
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Chita, George J.	Ev. B.A.	San Jose
Chock, Kenneth J.	Sen. Engr.	Honolulu, Hawaii
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Chu, Rodney C. L.	Fr. A&S	Honolulu, Hawaii
Chung, Jo L.	Ev. B.A.	Palo Alto
Chung, Victor W.	Ev. B.A.	Palo Alto
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Ciraulo, Robert L.	Soph. A&S	San Francisco
Ciraulo, Ronald E.	Soph. Engr.	San Francisco
Clark, Casey K.	Fr. Engr.	San Jose
Clark, Donald C.	Soph. A&S	Seattle, Washington
Clark, Luther A.	Law II	Los Gatos
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Clarke, David R.	Sen. Engr.	Hayward
Clarkin, Robert A.	Jun. A&S	Quezon City, P. I.

Clayton, Robert H., Jr.	Jun. B.A.	Los Altos
Cleary, John T.	Jun. B.A.	San Jose
Clemens, Gordon L.	Ev. B.A.	San Jose
Clements, John G.	Soph. Engr.	San Francisco
Cochrane, Arthur T.	Ev. B.A.	San Jose
Coffee, Robert L.	Ev. B.A.	Santa Clara
Coffey, William D.	Fr. Engr.	Bayonne, New Jersey
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Comstock, Don L.	Jun. Engr.	Orick
Conant, Roger V.	Fr. B.A.	San Marino
Conley, Patrick E.	Jun. Engr.	Los Angeles
Conmy, Thomas P.	Jun. A&S	Oakland
Conn, Walter J.	Sen. A&S	Pasadena
Conrado, Paul A.	Jun. Engr.	San Francisco
Conrady, John N., Jr.	Fr. A&S	Richmond
Cook, John R.	Fr. A&S	Santa Clara
Cook, Robert A.	Ev. B.A.	San Jose
Cooney, James D.	Jun. Engr.	San Francisco
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Eckstein, Michael L.	Sen. Engr.	Hayward
Egan, Martin T.	Jun. Engr.	San Jose
Egan, William F.	Fr. Engr.	San Francisco
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Ferrari, Richard L.	Jun. B.A.	Vallejo
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Fisher, Ira B., Jr.	Ev. B.A.	San Jose
Fitzgerald, William W.	Fr. A&S	Oxnard
Fitzpatrick, John C.	Soph. Engr.	Redding
Flaherty, Stephen M.	Sen. B.A.	Rio Vista
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Foley, Philip J.	Jun. A&S	San Jose
Fong, Wilfred Q.	Fr. Engr.	San Francisco
Fontes, Arnold R.	Sen. B.A.	Hollister
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Forge, Otis F.	Ev. B.A.	Cupertino
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Foster, Ronald E.	Ev. B.A.	San Jose
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Frietzsche, Albert, Jr.	Fr. A&S	San Francisco
Frizell, Bradford L.	Ev. B.A.	Saratoga
Fry, Laurence S.	Jun. Engr.	Pacific Grove
Gable, Eugene T., Jr.	Sen. B.A.	Lindsay
Gaffney, James J.	Fr. Engr.	San Bernardino
Galiotto, Nicholas B.	Fr. A&S	San Jose
Gallagher, Paul V.	Sen. B.A.	Folsom
Gallagher, Peter J.	Ev. B.A.	Santa Clara
Gallucci, Richard A.	Ev. B.A.	San Jose
Gamble, John H.	Law I	Los Gatos
Gandolfo, Dominic N.	Ev. B.A.	San Jose
Gardella, John L.	Soph. Engr.	Burlingame
Gardner, John W.	Soph. B.A.	Philadelphia, Pennsylvania
Garliepp, Kent L.	Fr. Engr.	Mt. View
Gastaldi, Albert H.	Fr. B.A.	Smith Flat
Gatzert, Gerry D.	Sen. B.A.	Santa Clara
Gaukler, Thomas A.	Fr. B.A.	Chino
Gavigan, James D.	Sen. B.A.	Los Angeles

Gavotto, Richard C.	Soph. B.A.	San Diego
Gebbie, Robert E.	Soph. A&S	Redwood City
Geddes, William S.	Ev. B.A.	San Jose
Genochio, Frank A.	Ev. B.A.	Santa Clara
George, Jack E.	Ev. B.A.	San Jose
George, Robert G.	Sen. Engr.	Santa Clara
Geraci, Joseph A.	Ev. B.A.	San Jose
Gerecke, August R., Jr.	Fr. A&S	Hasbrouck Hts., New Jersey
Ghiringhelli, Harry C.	Sub-Sen. B.A.	Fairfax
Giachino, Mario F.	Ev. B.A.	Mt. View
Giacomini, George F., Jr.	Jun. A&S	Redwood City
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Giannelli, Umberto, Jr.	Soph. A&S	San Carlos
Giannone, Leroy J.	Fr. Engr.	San Francisco
Gianotti, Jerome R.	Jun. Engr.	Portland, Oregon
Giffen, William R.	Soph. A&S	Tracy
Gil, William J.	Sen. Engr.	Santa Clara
*Giles, Ernest P.	Fr. A&S	Carmichael
Gill, Dean A.	Ev. B.A.	San Jose
Gilley, Curtis W.	Fr. Engr.	San Jose
Gillmor, Gary G.	Fr. A&S	San Francisco
Gillooly, Edward A.	Jun. B.A.	East Rutherford, New Jersey
Ginella, John F.	Sen. Engr.	San Francisco
Givenco, Russell P.	Ev. B.A.	Sunnyvale
Gleason, William E.	Sen. A&S	Trinidad, Colorado
Godfrey, James T.	Ev. B.A.	San Jose
Goeas, Gordon L.	Soph. Engr.	Honolulu, Hawaii
Goicovich, John S.	Fr. A&S	Gilroy
Goldstein, Robert G.	Jun. A&S	San Francisco
Gomez, Paul F.	Jun. B.A.	Atherton
Gomez, Richard J.	Fr. A&S	Saratoga
Gonsalves, Arthur J.	Ev. B.A.	San Jose
Good, John D.	Ev. B.A.	Sunnyvale
Goodfellow, Jack W.	Fr. Engr.	Oakland
Goodhue, Louis J.	Fr. A&S	Redwood City
Gooding, George N.	Soph. B.A.	Redwood City
Goodwin, Frederick E.	Sen. A&S	San Francisco
Goolkasian, Wilbur J.	Jun. B.A.	Reedley
Gorman, James R.	Fr. Engr.	San Leandro
Gorman, Sylvester J.	Ev. B.A.	San Jose
Gornick, Eugene A.	Jun. B.A.	Pueblo, Colorado
Gottwals, Donald C.	Fr. Engr.	Santa Clara
Gould, James L.	Sen. A&S	San Francisco
Gowing, Philip D.	Ev. B.A.	Santa Clara
Grady, Donald H.	Jun. A&S	Fresno
Grady, Leonard J.	Ev. B.A.	Los Gatos
Graedel, Hans H.	Ev. B.A.	San Jose
Grandjean, Charles, IV	Ev. B.A.	Santa Clara
Grassi, Don J.	Fr. A&S	Tacoma, Washington
Gray, Donald V.	Jun. B.A.	Woodland
Gray, Ernest J.	Soph. B.A.	San Francisco
Graziani, Rudy	Fr. A&S	Antioch
Greco, Victor V.	Soph. A&S	San Jose

Greene, Dan S.	Ev. B.A.	Mt. View
Greiner, Kurt	Sen. B.A.	Sao Paulo, Brazil
Gremillion, Avit J.	Ev. B.A.	San Jose
Grimaldi, John S.	Jun. Engr.	San Jose
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Guerrero, Carlos A.	Fr. A&S	San Francisco
Guilhamet, Richard L.	Jun. A&S	Hollister
Guinasso, Anthony E.	Soph. Engr.	Stockton
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Gutierrez, Philip A.	Jun. A&S	Sunnyvale
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Hall, Wayne O.	Jun. B.A.	Watsonville
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Kelsey, Matt A.	Soph. Engr.	Los Gatos
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Kenning, Mark A.	Fr. Engr.	Burlingame
Kerins, James H.	Fr. Engr.	Sacramento
Kernan, Redmond F., III	Jun. Engr.	Atherton
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Kiely, John J.	Sen. A&S	Santa Clara
Kimball, Peter S.	Soph. B.A.	Carmel
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King, Inez	Ev. B.A.	Los Altos
King, J. W.	Fr. B.A.	Fresno
Kinn, Vincent K.	Ev. BA.	Santa Clara
Kirkish, Delano G.	Fr. Engr.	Sunnyvale

Kirrene, Gerald T.	Soph B.A.	Sacramento
Klitgaard, Guy C.	Soph. A&S	Belmont
Koch, Curtis W.	Ev. B.A.	Redwood City
Kofron, David W.	Fr. B.A.	Burlingame
Kohlman, Richard J.	Soph. A&S	Menlo Park
Komes, Jerome M.	Fr. Engr.	San Francisco
Kondo, Toshiyuki T.	Ev. B.A.	San Jose
Kopp, Harold J.	Fr. Engr.	San Francisco
Koppes, Larry J.	Ev. B.A.	Mountain View
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Kost, Theodore R.	Ev. B.A.	San Jose
Kralj, Nicholas L.	Jun. B.A.	Watsonville
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Krug, Paul H.	Jun. Engr.	Del Rosa
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Kuhn, Kurt P.	Fr. B.A.	Portland, Oregon
Kunde, Raymond	Ev. B.A.	San Jose
Kurtz, Donald A.	Ev. B.A.	San Jose
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Lagomarsino, William J.	Jun. B.A.	Sacramento
Lalor, Harry N.	Fr. Engr.	Stockton
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Lane. Howard B.	Fr. Engr.	So. San Francisco
Lane, John C.	Fr. Engr.	San Jose
Laney, Francis E.	Jun. B.A.	Yuba City
Laney, Peter O.	Fr. A&S	Yuba City
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Langston, Robert A.	Soph. B.A.	Merced
Lantz, Edward L.	Ev. B.A.	Saratoga
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Lavin, Philip A.	Soph. A&S	Fairfax
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Lazzeri, David A.	Soph. B.A.	San Francisco
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Legallet, Paul	Fr. B.A.	San Mateo
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Lewis, Elmon O.	Ev. B.A.	Mt. View
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Little, William B.	Ev. B.A.	San Jose
Lloyd, Henry	Ev. B.A.	San Jose
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Loney, Kevin A.	Jun. B.A.	Jamestown
Longwello, Charles J.	Jun. B.A.	San Jose
Lopes, Albert J.	Jun. B.A.	Wilton
Lopes, Arthur W.	Ev. B.A.	San Jose
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Lopez, Joe G.	Ev. B.A.	San Jose
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Miller, Gordon T.	Jun. B.A.	Menlo Park
Miller, Gregory J.	Jun. Engr.	Santa Clara
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Miller, Michael P.	Fr. Engr.	San Francisco
Miller, Thomas C.	Soph. Engr.	San Anselmo
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Modeste, Ronald G.	Sen. A&S	San Francisco
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Moore, Philip H.	Soph. Engr.	San Francisco
Moran, Francis J.	Jun. Engr.	Walnut Creek
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Moran, Leslie K.	Sub-Sen. B.A.	San Francisco
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Mudd, Robert E.	Fr. Engr.	Orland
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Murphy, Jay P.	Sen. Engr.	Piedmont
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Murphy, John R.	Fr. Engr.	Sacramento
Murphy, John T.	Fr. A&S	San Francisco
Murphy, Kenneth J.	Fr. A&S	Los Angeles
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Murphy, Martin D.	Jun. A&S	San Francisco
Murphy, Patrick J.	Sen. B.A.	Los Altos
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Nedd, Robert L.	Ev. B.A.	Palo Alto
Negri, Fred L.	Fr. B.A.	Napa

Nelson, Edward M.	Ev. B.A.	Irvington
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Nicholas, Joseph L.	Jun. A&S	Santa Clara
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Nicolas, Pierre J.	Soph. B.A.	Fullerton
Nino, Edward D.	Soph. A&S	Los Gatos
Nisich, Gaylen L.	Soph. Engr.	San Jose
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Nobriga, Frank J.	Fr. B.A.	Santa Clara
Nolan, John A.	Fr. Engr.	No. Sacramento
Nolan, John E.	Jun. A&S	Oakland
Noonan, John W.	Sen. A&S	San Francisco
Norden, Robert A.	Soph. A&S	San Jose
Noriega, Alonso	Soph. Engr.	Mexico City, Mexico
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Normandin, Louis O.	Jun. B.A.	San Jose
Norton, Thomas R.	Soph. Engr.	San Francisco
Novak, Fabian S.	Sen. B.A.	Watsonville
Nucci, Donald A.	Fr. B.A.	Salinas
Nulk, Robert A.	Fr. Engr.	Vacaville
Nunes, Edmund S.	Ev. B.A.	Santa Clara
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O'Boyle, Neal F.	Sen. Engr.	San Francisco
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O'Brien, James R.	Fr. A&S	San Mateo
O'Brien, John H.	Law I	Santa Clara
O'Brien, Robert D.	Sen. A&S	San Mateo
O'Brien, Rodger B.	Soph. Engr.	Santa Clara
O'Callaghan, Michael J.	Fr. Engr.	San Francisco
O'Connell, Dennis B.	Ev. B.A.	Mt. View
O'Connor, John A.	Fr. A&S	Mt. View
O'Connor, William J.	Soph. B.A.	Bryn Maur, Pennsylvania
O'Donnell William J.	Fr. B.A.	San Francisco
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Oikawa, Frank E.	Ev. B.A.	Santa Clara
Okagaki, Thomas S.	Ev. B.A.	San Jose
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O'Rourke, Robert A.	Fr. A&S	San Jose
Orr, Gerald W.	Soph. A&S	San Francisco
Orr, Terrence E.	Fr. Engr.	Lancaster
Oshiba, Kimiye	Ev. B.A.	San Jose
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Pagen, John L., Jr.	Ev. B.A.	San Jose
Palmer, Roy G.	Jun. Engr.	Mt. Angel, Oregon
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Paxton, Raymond G., Jr.	Fr. A&S	San Francisco
Pearsall, Clarence O.	Ev. B.A.	San Jose
Pease, Edwin W.	Ev. B.A.	San Jose
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Peffley, Gordon L.	Fr. B.A.	Campbell
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INDEX

PAGE

Academic Standards 47
Accounting Major 75
Accreditations of the University 1
Administration, Officers of 3
Admission 40, 41
  To Advanced Standing 41
  To Freshman Standing 40
  Of Foreign Students 41
  Of Special Students 41
Alumni 19, 37
American Institutions 50
Archaeological Committee 150
Arts and Sciences, General 52
  Education, General 54
  Electives 56
  Entrance Requirements 52
  Graduate Record Examination 55
  Lower Division 54
  Upper Division 54
  Requirements for Bachelor of Arts 55
  Requirements for Bachelor of Science 55
  Science Majors 54
Athletics 19, 37
Attendance, General 48
  Law 91
Biology, Curriculum 56
  Courses in 93
Bookstore, University 33
Buildings 19, 23
Business Administration, College of 70
  Advisory Board 70
  Degrees in 70
  Entrance Requirements to 71
  Evening Division 76
  Graduation Requirements 50, 74
  Lower Division Curriculum 71, 72
  Method of Instruction 71
  Organization 71
  Upper Division Majors 73, 74, 75
Business Administration, Courses in 94
Calendar 4, 5
Change of College or Major 50
Chemistry, Curriculum 57
  Courses in 99
Civil Engineering, Curriculum 82
  Courses in 102
  Electives 82
Clothing 31
Combined Degree 53
Courses 50
Courses, Repeated 47
Credit Hours and Points 49
Debating 36

Degrees 50, 53
Conferred 1954 152
Departmental Organizations 34
DeSaisset Art Gallery and Museum 19, 149
Development, Department of 150
Discipline 45
Dismissal for Scholarship 48
For Discipline 45, 46
For Dishonesty 48
Dramatic Organizations 36
Economics, Curriculum 59
Courses in 104
Education, System of 23
Education, Courses in 107
Education, General 54
Electrical Engineering, Curriculum 84
Courses in 109
Electives 84
Eligibility Rules 46
Employment, Student 30
Endowment 25
Engineering, College of 77
Advisory Council 77
Degree Requirements 50, 80
Entrance Requirements 77
Graduate Degrees 79
Majors in 78
English, Curriculum 60
Courses in 112
Evening Division, Statement 76
Courses in 139
Examinations 49
Expenses 31, 32, 33
Faculty 6
Committees 18
Club 37
Failures 47
Foreign Language
Requirements in College of Arts and Sciences 52
French, Courses in 113
Freshmen, Orientation 42, 53
General Engineering, Courses in 114
Geology, Courses in 115
Grading 47
Graduate Record Examination 55
Graduation Requirements 50, 55, 74, 80, 91
German, Courses in 116
Greek, Courses in 116
Grounds and Buildings 19, 23
Health Service 43
History, Curriculum 62
Courses in 117
History, University 21
Honors, Graduation 55, 74, 80
Incompletes 47
Industrial Engineering Option 88
Infirmary, Donohoe 19, 24, 33, 43
Intra Mural Sports 37

Italian, Courses in 119
Journalism, see English, courses in 112
Latin, Courses in 119
Law, College of 89
  Activities 92
  Advanced Standing 90
  Entrance Requirements to 90
  Graduation Requirements 91
  Scholarships 92
Law, Courses in 120
Library, Varsi 19, 24
Library, Law 19, 24
Loans 30
Location, Campus 21, 69
Los Gatos Campus 23, 69
Mathematics, Courses in 122
Mechanical Engineering, Curriculum 86
  Courses in 125
  Electives 86
Military Science, Statement 43, 44, 45
  Courses in 127
Music 36
  Courses in 128
National Honor Societies 34
Numbering of Courses 50
Observatory, The Ricard Memorial 19, 149
Orientation, Freshmen 42, 53
Personnel, Infirmary 19
  Library 19
  Technical and Clerical 20
Philosophy, Curriculum 63
  Courses in 128
Physical Education, Courses in 107
Physics, Curriculum 65
  Courses in 131
Placement 19, 151
Political Science, Curriculum 66
  Courses in 134
Predental 53
Prelegal 53, 89
Premedical 53
Prizes, Established 37, 38, 39
  Awarded 1954 157
Probation 48
Psychology, Courses in 135
Public Speaking, Courses in 136
Publications 36
Publicity 19
Radio Station 25
Refunds 32, 33
Registration 42
Register, Student 159
Reinstatement 48
Religion, Courses in 137
Religious Organizations 33
Religious Training 43
Repetition of Courses 47

Research, University 19, 150
Residence, Halls 23, 24, 25
Residence, Rules Governing 45
Requirements, Departmental 93
Scholarships, Established 27, 28, 29, 30
  Qualifications 26
Science Majors 54
Sessions, Regular 51
Sociology, Courses in 137
Spanish, Curriculum 67
  Courses in 138
Special Students, Admission 41
Student Congress 33
Student Organizations 33
  Athletics 37
  Congress 33
  Debating 36
  Departmental 34, 79, 93
  Dramatics 36
  Music 36
  National Honor 34
  National Societies 34
  Publications 36
  Religious 33
Subject A 42
Summer Courses 51
Transcript of Records 31, 51
Trustees 2
Tuition and Fees 31
Withdrawal Procedure 46

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